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DINOSAURS!

•DISCOVER THE GIANTS OF THE PR IC WORLD•

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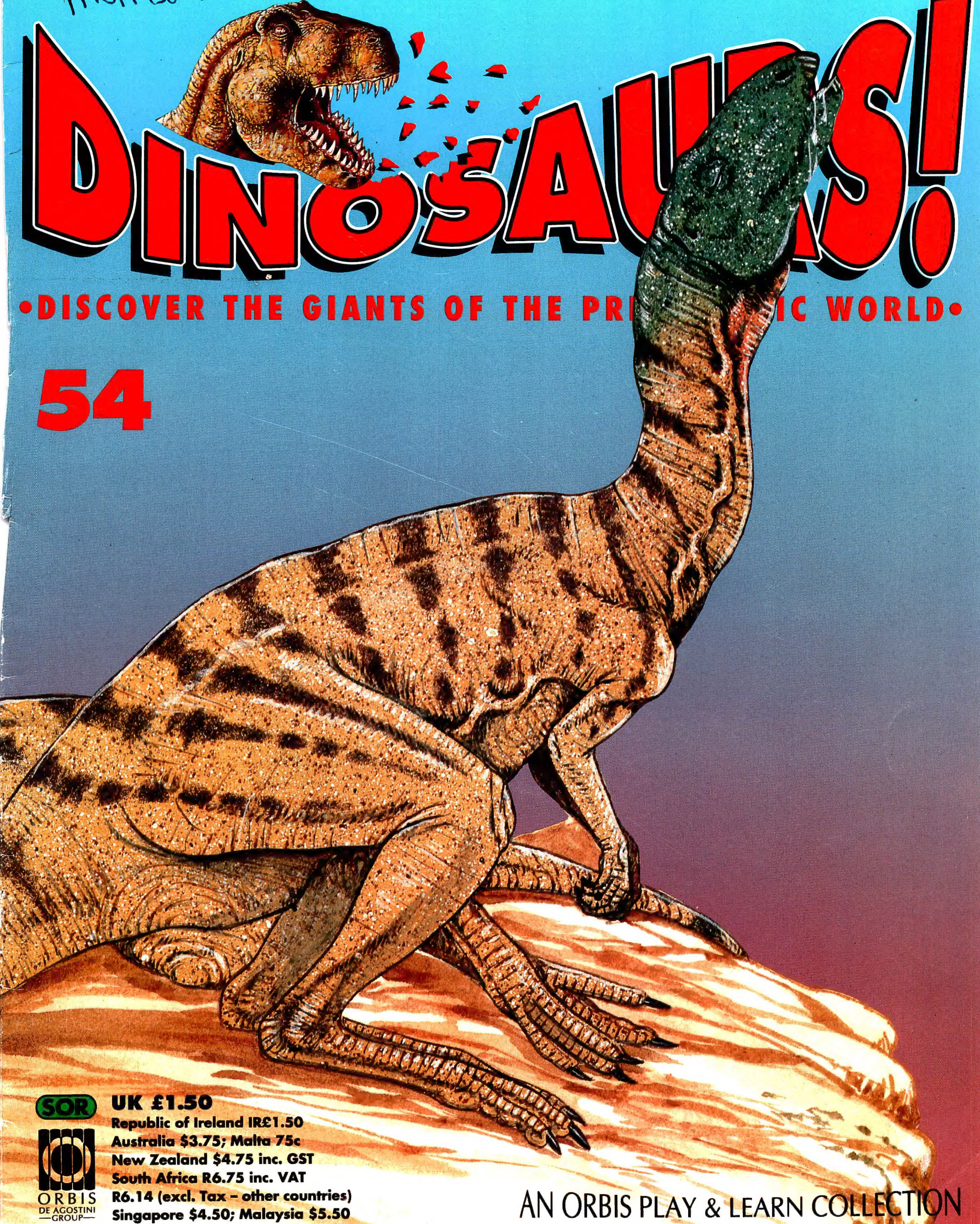

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DINOSAURS!

• DISCOVER THE GIANTS OF THE PREHISTORIC WORLD •

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DIATRYMA

This huge, flightless bird, taller than the average man, preyed on small plant-eating mammals.

After the dinosaurs disappeared from the Earth, new predators emerged to take their place. About 50 million years ago the biggest hunters were massive birds – 'terror cranes' – which could not fly. For millions of years, *Diatryma* had no real rival amongst other predators. It usually hunted little plant-eating mammals, although some experts suggest that it was fierce enough to attack and kill a small horse!

ON THE RUN

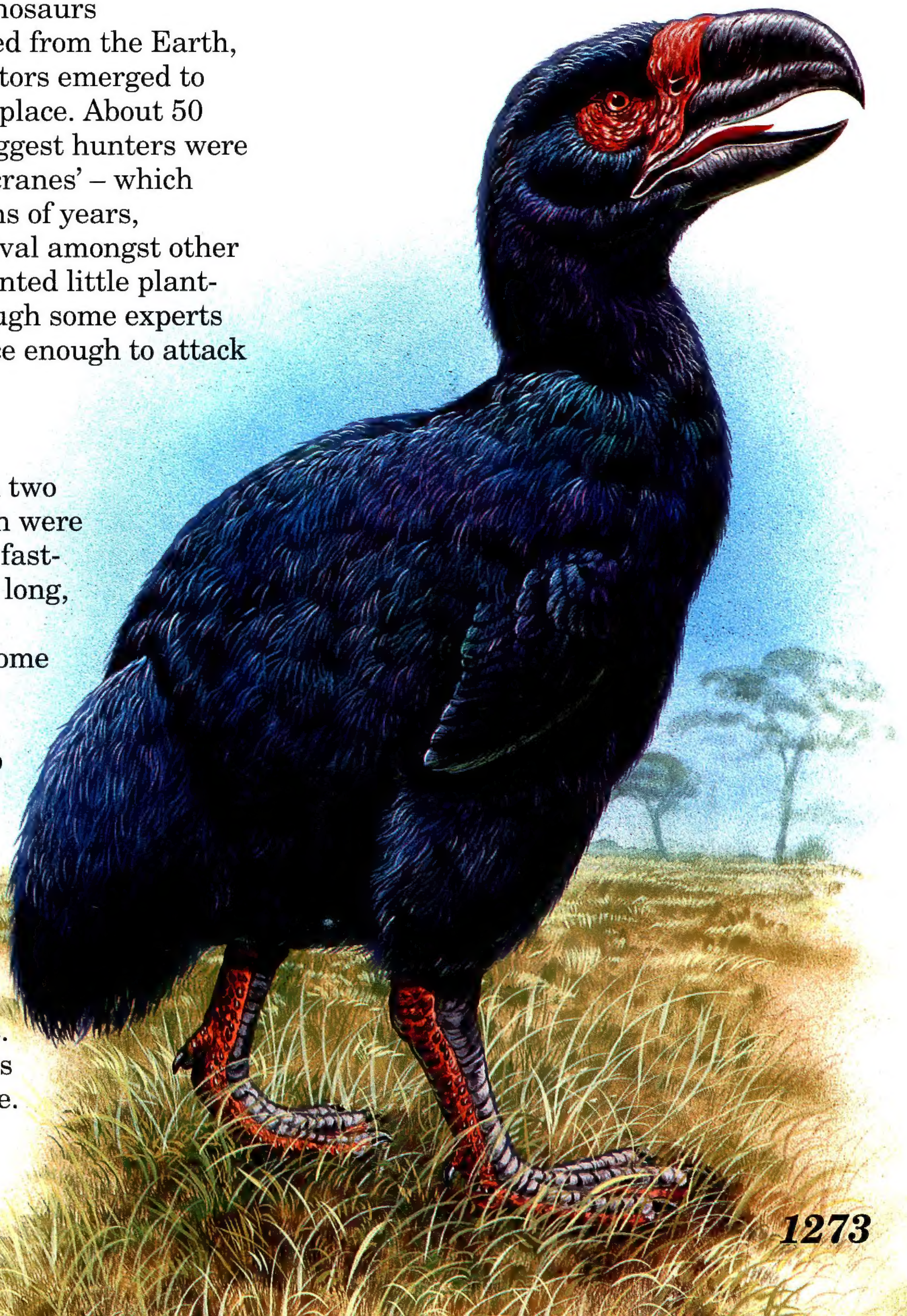
Diatryma sped along on two strongly built legs which were perfectly designed for a fast-running animal. It took long, powerful strides as it pursued its prey. Like some predatory dinosaurs, it used its large, clawed feet as a weapon to help subdue its victim.

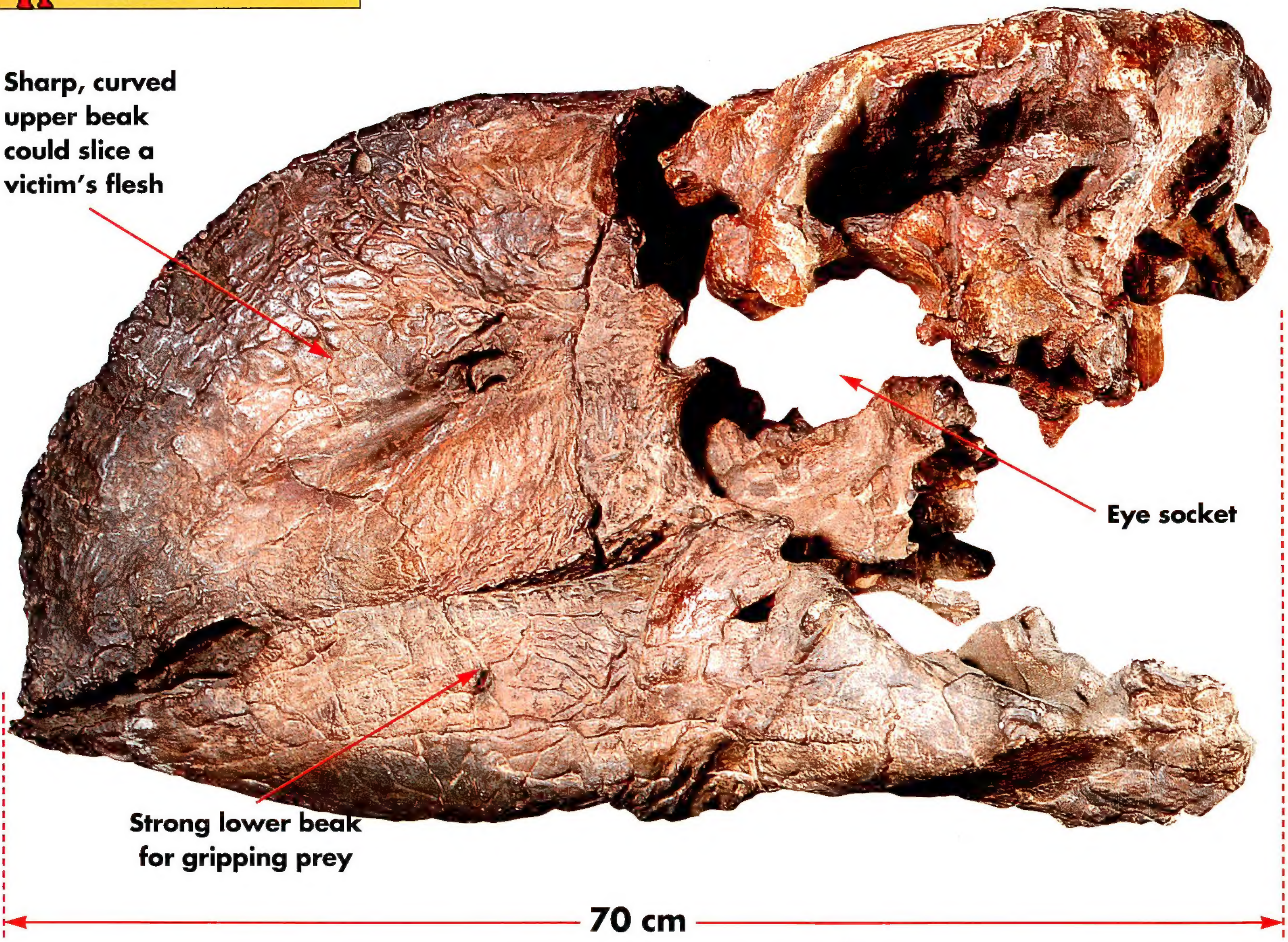
PLAIN LIVING

Diatryma probably lived on open plains. It could do this quite safely as it had little to fear from other animals. No other large predators existed at the same time.

NO NEED TO FLY

Without an enemy to chase it, the big bird had no need of a pair of working wings to give it a quick means of escape.




Sharp, curved upper beak could slice a victim's flesh
Eye socket
Strong lower beak for gripping prey
70 cm

LIGHT AS A FEATHER

A thick covering of feathers made *Diatryma*'s body look bigger than it really was. In reality its feathered plumes made the bird very light so that it was able to run swiftly.

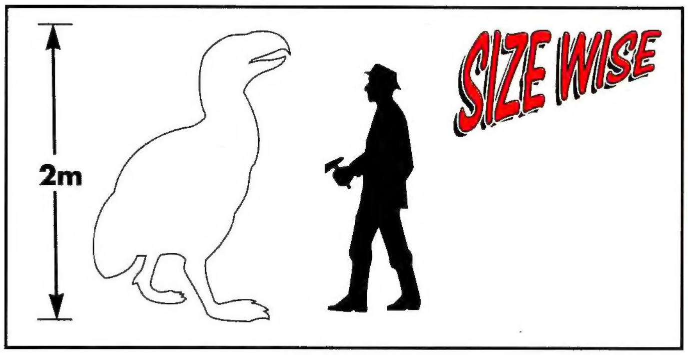
Today's flightless cassowary can kill a man with its powerful kicking legs.

DEADLY DAMAGE

Diatryma had three long, clawed toes on each foot and a fourth toe which pointed backwards. As its victim was held in the firm grip of *Diatryma*'s beak, the sharp talons ripped at the skin until the creature was too weak from loss of blood to resist.

MONSTER FACTS

- **NAME:** *Diatryma* (die-a-try-ma) means 'through hole'
- **GROUP:** bird
- **SIZE:** about 2m tall
- **FOOD:** meat, mostly small mammals
- **LIVED:** about 50 million years ago in the Eocene Epoch in Europe and North America

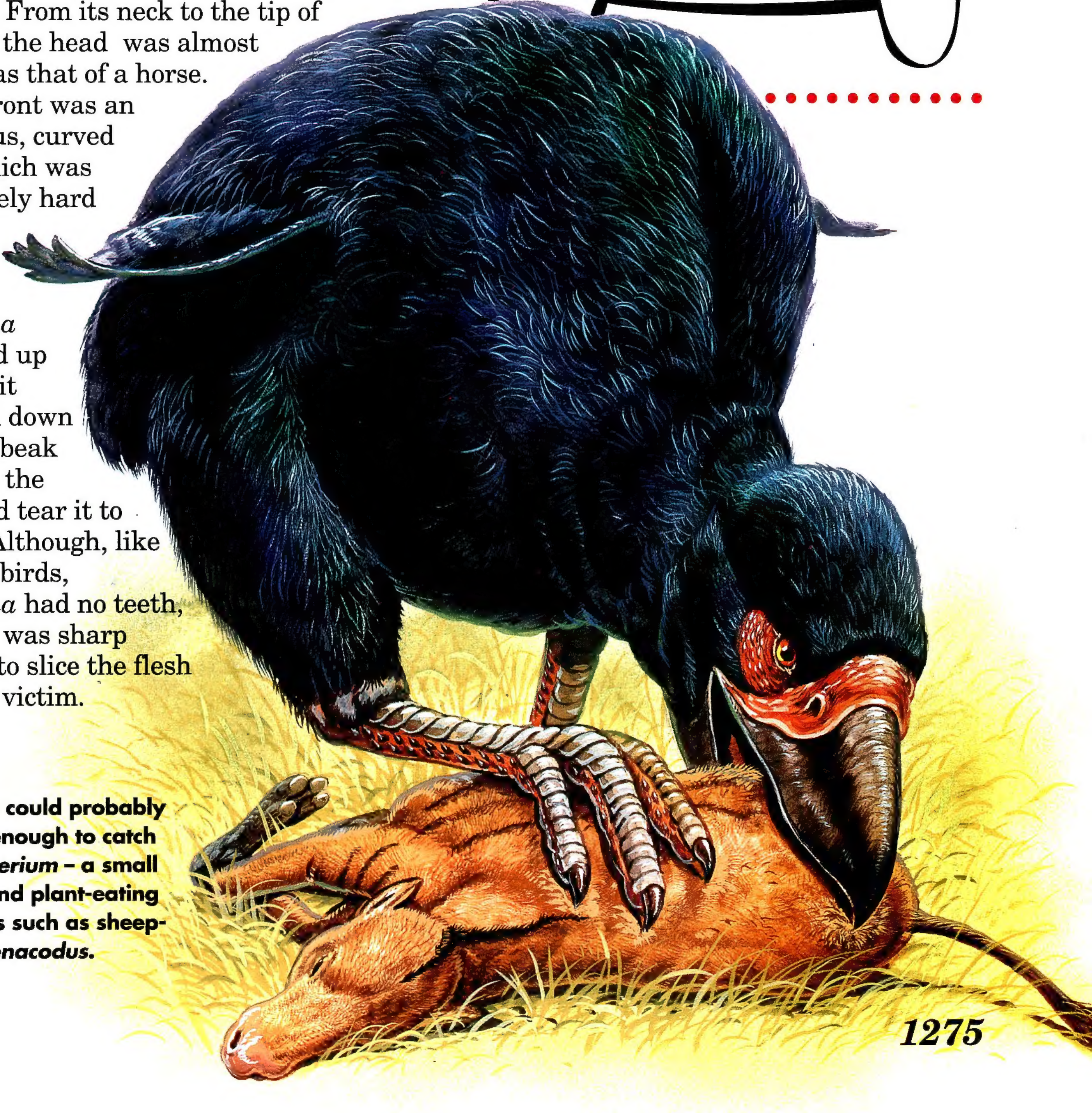


IT'S A FACT

The largest prehistoric bird was *Dromornis stirtoni*. This huge emu-like flightless bird was as tall as a polar bear and four times heavier than an ostrich. The fossilized remains of its leg bones were found at Alice Springs, central Australia in 1974. *Dromornis stirtoni* lived over 11 million years ago.

HUGE HEAD

Unlike the emu or ostrich of today, *Diatryma* had a huge head for the size of its body. From its neck to the tip of its beak the head was almost as long as that of a horse. At the front was an enormous, curved beak which was immensely hard and strong. As *Diatryma* snatched up its prey it clamped down with its beak to crush the body and tear it to pieces. Although, like modern birds, *Diatryma* had no teeth, its beak was sharp enough to slice the flesh from its victim.

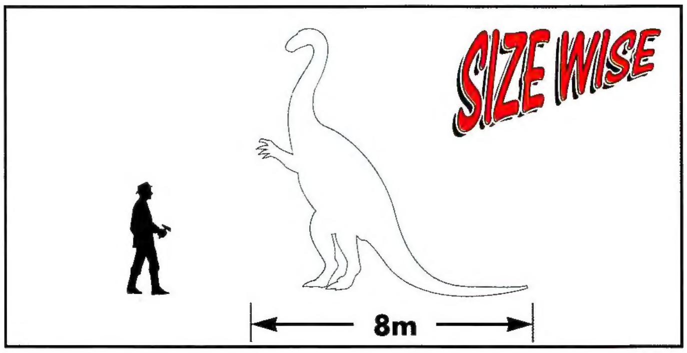


***Diatryma* could probably run fast enough to catch *Hyracotherium* – a small horse – and plant-eating mammals such as sheep-sized *Phenacodus*.**

EUSKELOSAURUS

***Euskelosaurus* was one of the first dinosaurs to be discovered in Africa.**

Longer than an elephant, and with large, powerful legs, *Euskelosaurus* roamed the ancient forests of South Africa and fed on ferns and horsetails.



MONSTER FACTS

- **NAME:** *Euskelosaurus* (yoo-skell-oh-saw-rus) means 'true leg reptile'
- **GROUP:** dinosaur
- **SIZE:** up to 8m long
- **FOOD:** plants
- **LIVED:** about 210 million years ago in the Late Triassic Period in Africa

HEADLESS REMAINS

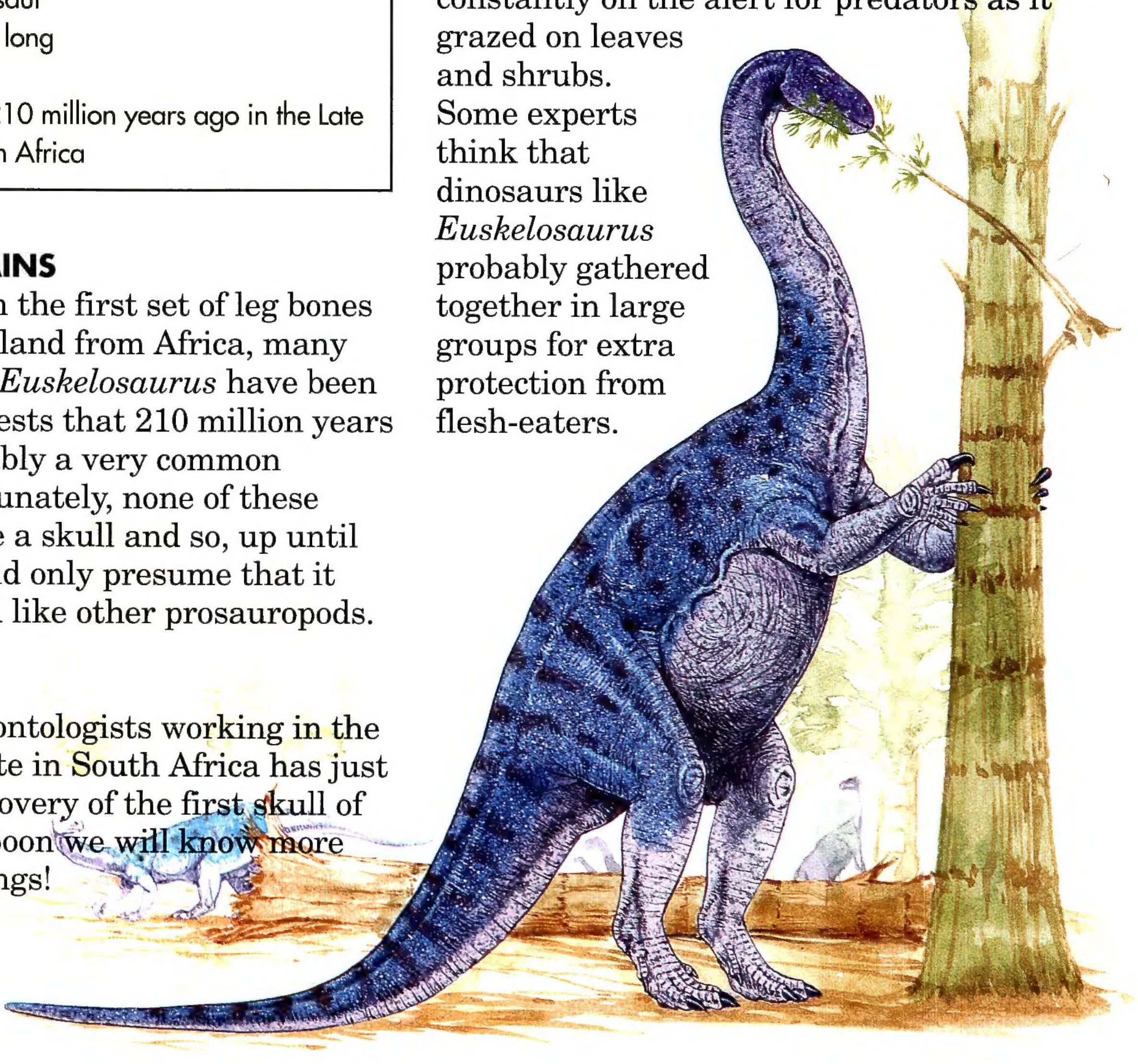
Since 1866, when the first set of leg bones were sent to England from Africa, many more remains of *Euskelosaurus* have been found. This suggests that 210 million years ago, it was probably a very common dinosaur. Unfortunately, none of these skeletons include a skull and so, up until now, experts could only presume that it had a small head like other prosauropods.

HEAD FOUND

A group of palaeontologists working in the Orange Free State in South Africa has just reported the discovery of the first skull of *Euskelosaurus*. Soon we will know more about their findings!

WATCH OUT – FLESH-EATERS ABOUT!

As it walked, *Euskelosaurus* probably balanced its long neck by holding its tail stiffly above the ground. Like other prosauropods, *Euskelosaurus* had to be constantly on the alert for predators as it grazed on leaves and shrubs. Some experts think that dinosaurs like *Euskelosaurus* probably gathered together in large groups for extra protection from flesh-eaters.



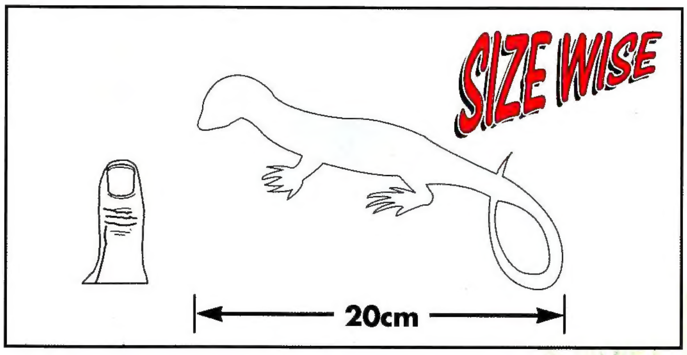
HYLONOMUS

One of the oldest known reptiles, *Hylonomus* was about as long as this page is wide.

Several skeletons of this lizard-like creature were found in fossilized tree stumps in Nova Scotia, Canada. *Hylonomus* probably scampered along the branches and became trapped inside hollow tree trunks. For many years, experts thought that it was the oldest of all reptiles. But in 1988, another ancient creature, nicknamed 'Lizzie', was discovered in Scotland. It is probably about 40 million years older than *Hylonomus*.

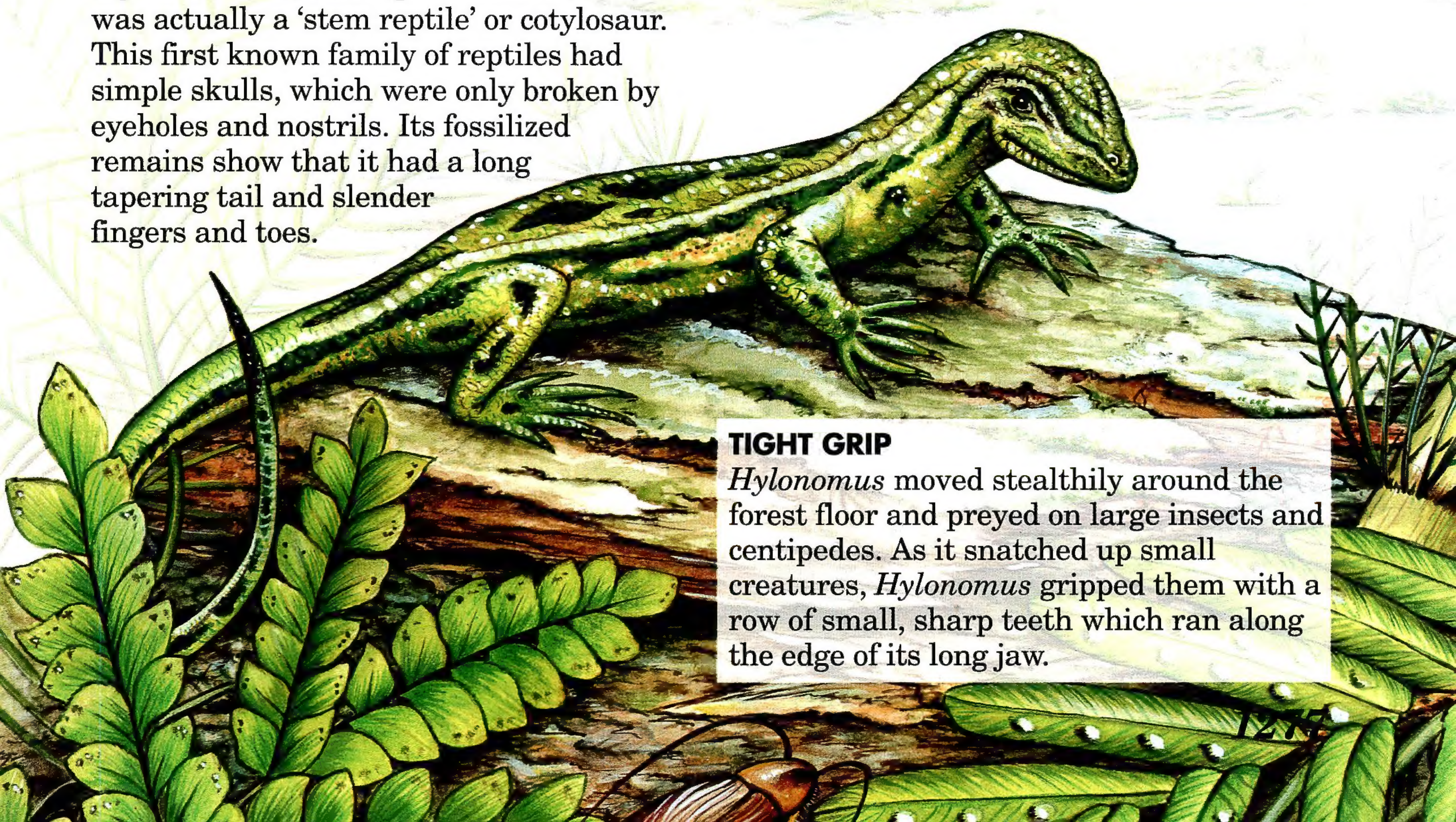
SOLID SKULL

Although *Hylonomus* had the sprawled legs and small, darting head of a lizard, it was actually a 'stem reptile' or cotylosaur. This first known family of reptiles had simple skulls, which were only broken by eyeholes and nostrils. Its fossilized remains show that it had a long tapering tail and slender fingers and toes.



MONSTER FACTS

- **NAME:** *Hylonomus* (hy-lo-nome-us) means 'wood law'
- **SIZE:** about 20cm long
- **GROUP:** reptile
- **FOOD:** large insects
- **LIVED:** about 310 million years ago in the Middle Carboniferous Period in Nova Scotia, Canada



TIGHT GRIP

Hylonomus moved stealthily around the forest floor and preyed on large insects and centipedes. As it snatched up small creatures, *Hylonomus* gripped them with a row of small, sharp teeth which ran along the edge of its long jaw.

Success in the sea

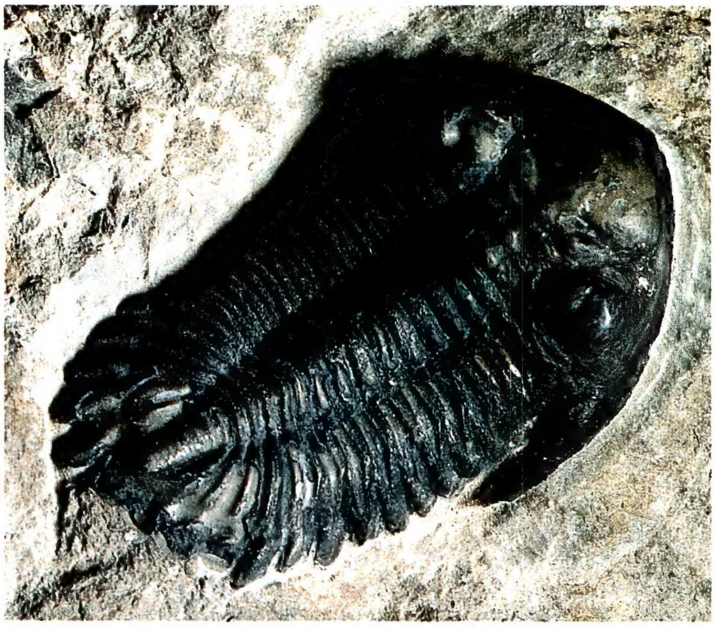
Trilobites were an important group of animals for 160 million years, and we know of about 2,000 different types.

Over 500 million years ago – long before the Age of Dinosaurs – the continents were bare and lifeless. There was no movement but the drift of sand over rocks, no sound but the wind, no plant shoots peeping through the sterile soil. In the ancient seas, however, it was a very different story.

IT'S A FACT

FOSSIL RECORDS

The oldest useful fossils date from the beginning of the Cambrian Period. Before this, animals had no hard shells, and so did not leave good fossils. Then hard shells developed amongst all kinds of animals, and we have good fossil records from then on.



Only very rarely do we find a complete fossil trilobite, legs and all.

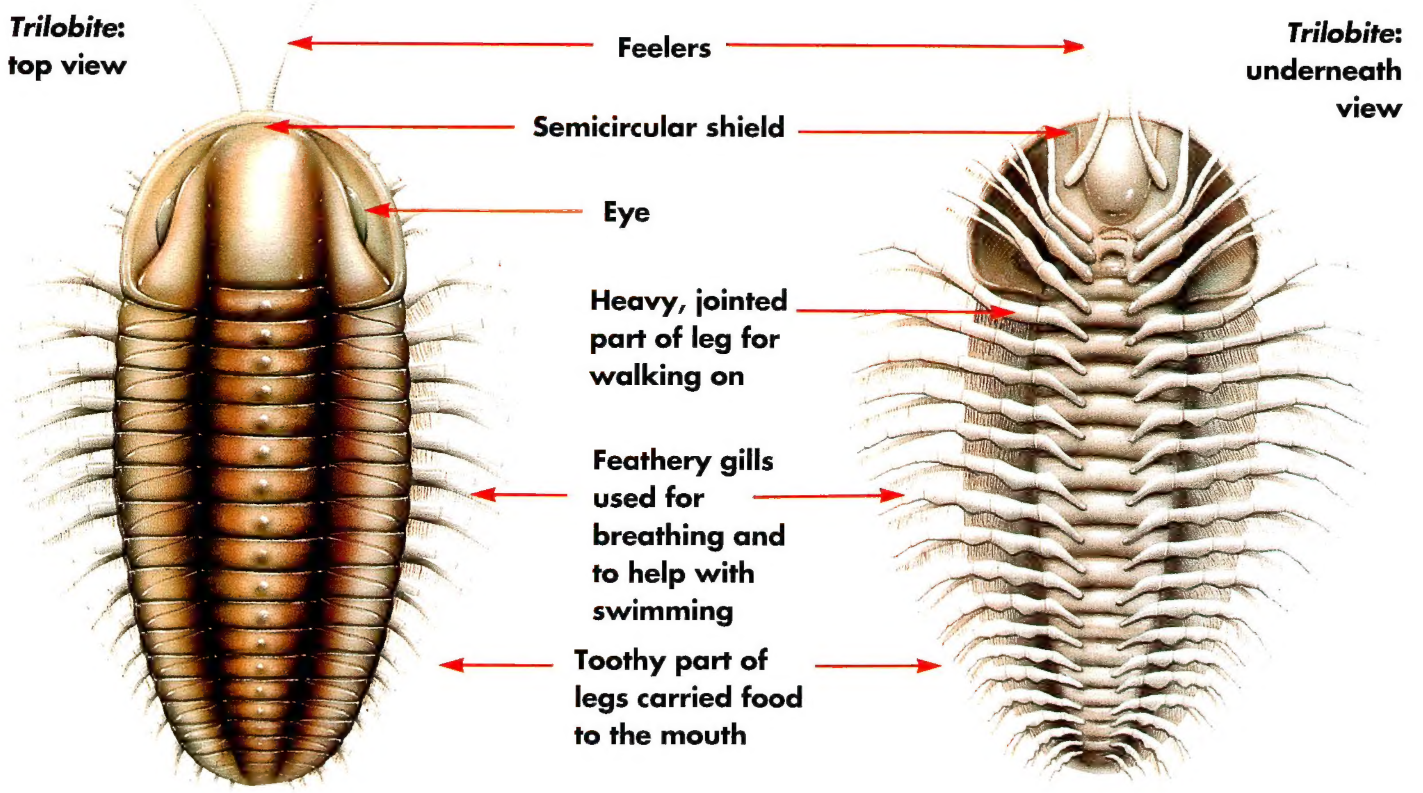
SEA STORY

A sudden flush of evolution had filled the waters with all sorts of swimming, crawling, wriggling things – all with some kind of hard shell or skeleton. One of the most successful of these groups were the animals we call the trilobites.

SHAPED TO SURVIVE

Imagine an animal like a woodlouse with a body divided into segments. Give it a semi-circular shield at the head end, with a mouth, a pair of eyes and a pair of feelers. Give it another shield at the tail end, and give each segment of the body a pair of legs to use for crawling, swimming and eating. This is the basic shape of a trilobite.

The trilobite shed its shell several times throughout its life. That is why parts of the shell are found as fossils more often than complete trilobites.

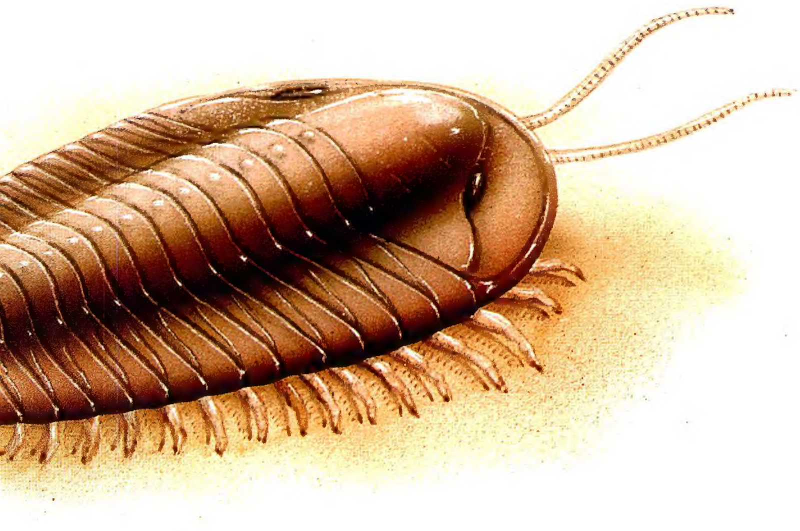

Trilobite: top view
Feelers
Trilobite: underneath view
Semicircular shield
Eye
Heavy, jointed part of leg for walking on
Feathery gills used for breathing and to help with swimming
Toothy part of legs carried food to the mouth

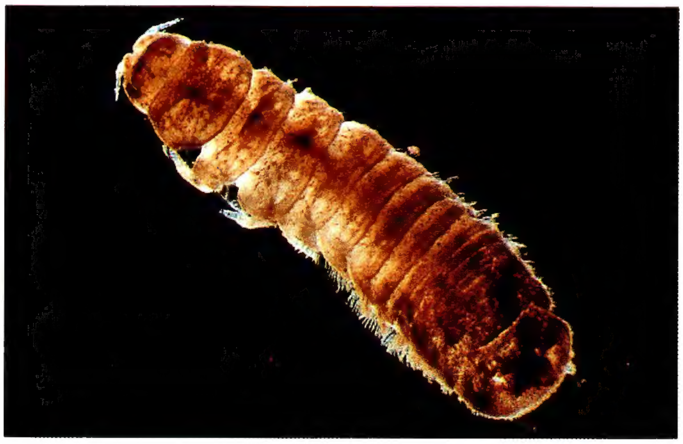
TRI MEANS THREE

Down the middle of the trilobite's back, from head to tail, was a raised ridge. This ridge, and the parts of the body lying to each side, gave the animal a 'three-lobed' appearance, hence the name 'trilobite'.

LONG-LIVED LINE

Cambrian, Ordovician and Silurian rocks are full of trilobite fossils. Then they began to die away and by the end of the Permian they are completely extinct.





From above a trilobite looked rather like this modern sea creature called a sea slater or gribble, but with a ridge down its back.

NEW SHELLS FOR OLD

Trilobites were arthropods – the group of joint-legged animals to which today's shrimps, crabs and lobsters belong. Like these animals they were covered by shells. These shells could not grow with the animal. Every now and again the trilobite would throw off its shell and then grow another one.

DIFFERENT SHAPES, DIFFERENT LIFESTYLES

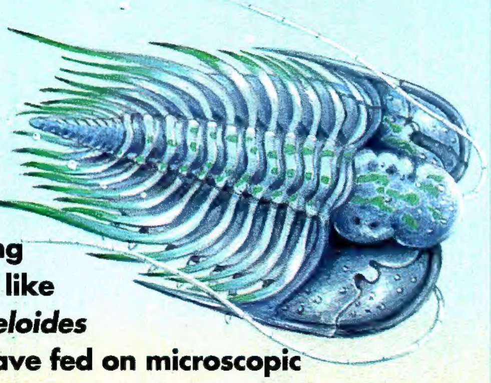
As with most animals, we can tell how particular trilobites lived by looking at their shapes.

LIFE AT THE BOTTOM

We can tell a trilobite that lived on the sea bed, because it is quite lumpy and heavy-looking, and has its eyes on stalks so that it can see around it. *Encrinurus* from the Silurian was a typical bottom-dweller.

SWIMMING FREE

A swimming trilobite was lightly-built, with less shell than other trilobites. Feathery-looking *Paracybeloides* may have been an Ordovician swimmer.



Swimming trilobites like *Paracybeloides* would have fed on microscopic plants and animals floating in the ocean.

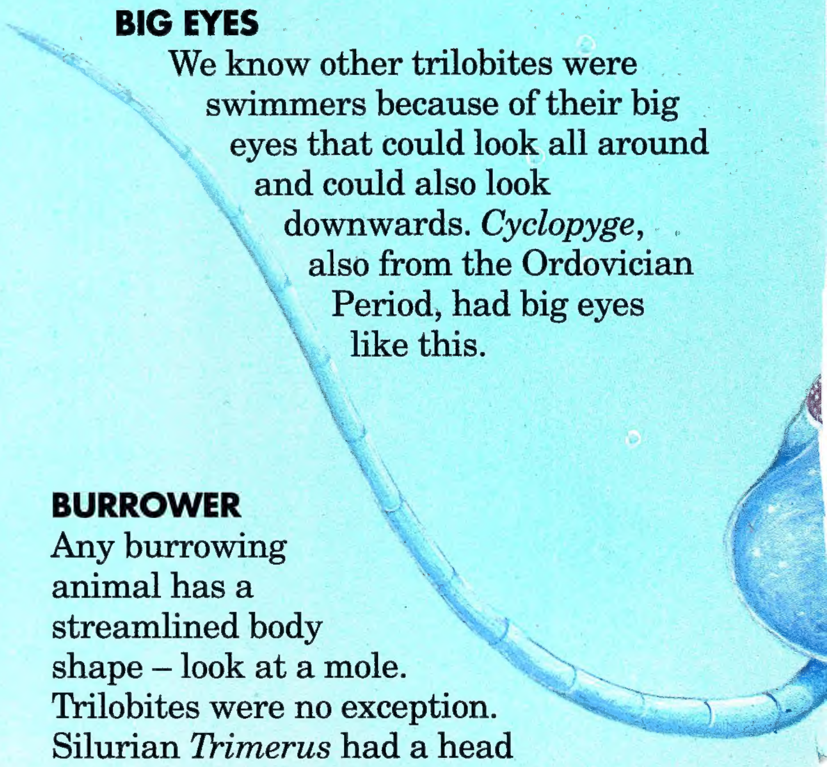
Is it true

that there are no trilobites left?

The last trilobite died out 250 million years ago. The nearest living relative is the horseshoe crab *Limulus* from the shallow waters around North America. In its young stage *Limulus* looks very much like a trilobite.

BIG EYES

We know other trilobites were swimmers because of their big eyes that could look all around and could also look downwards. *Cyclopyge*, also from the Ordovician Period, had big eyes like this.



BURROWER

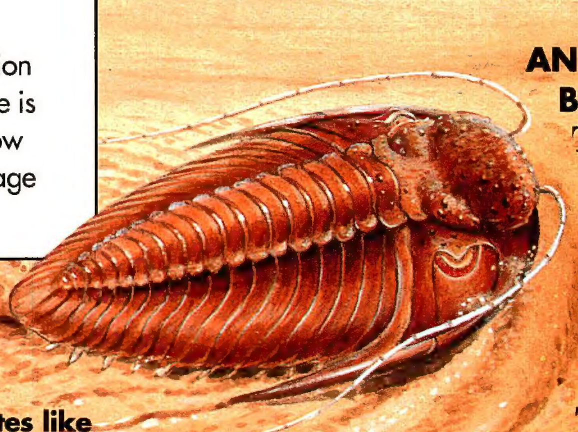
Any burrowing animal has a streamlined body shape – look at a mole. Trilobites were no exception. Silurian *Trimerus* had a head shield that was distinctly spade-like, and had tiny eyes. It probably burrowed through the sand.

THE SMALLEST

The Cambrian trilobite *Agnostus* was smaller than your little finger nail. It consisted of a head shield and a tail shield which were about the same size, and only two body segments between them. It had no eyes, so it may have lived in the deep sea where there was no light.

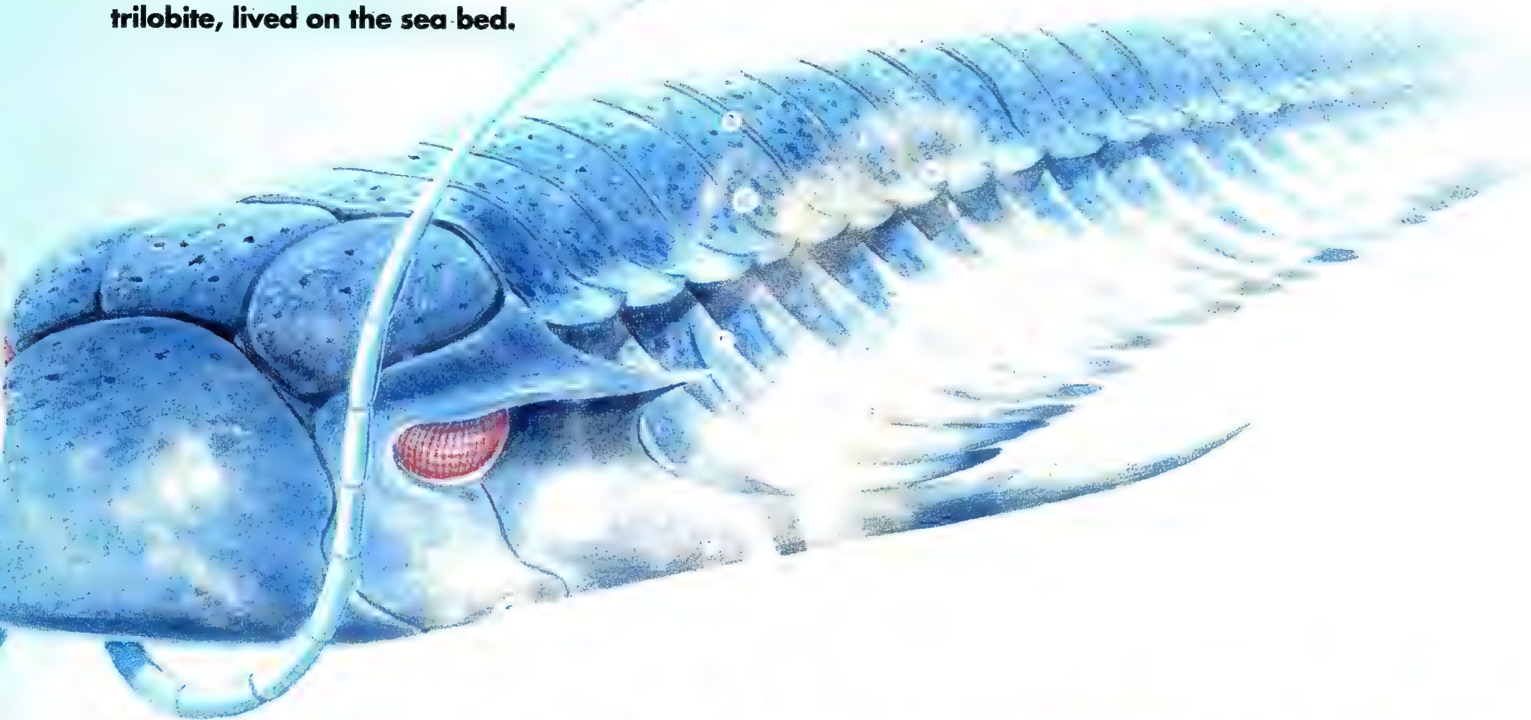
AND THE BIGGEST

The biggest trilobite that we know was *Uralichas* which lived in Ordovician times. It was 70cm long. It was a harmless but an impressive beast!



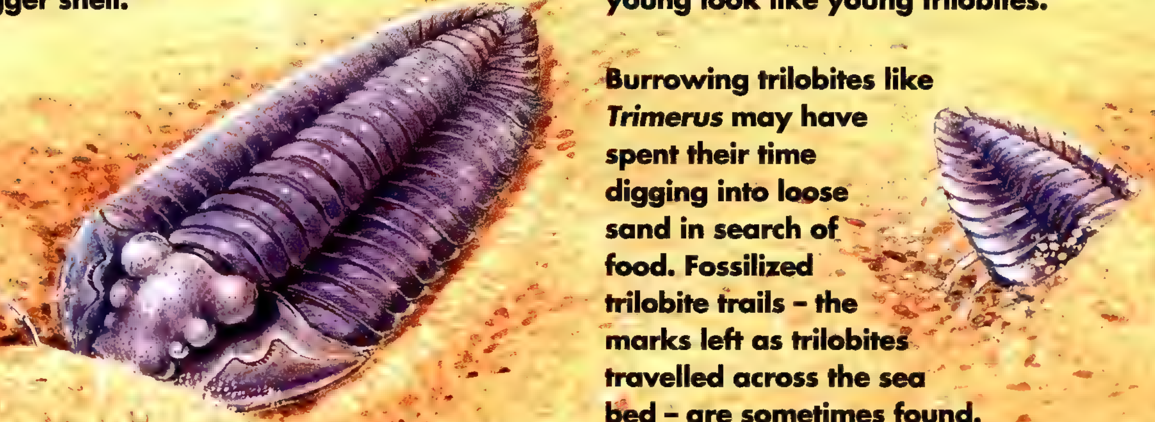
Bottom-dwelling trilobites like *Encrinurus* crawled across the seafloor eating the food particles lying there.

Uralichas, the biggest-known trilobite, lived on the sea bed.



Many trilobite fossils are of the empty shell – left behind when the trilobite moulted and grew a new, bigger shell.

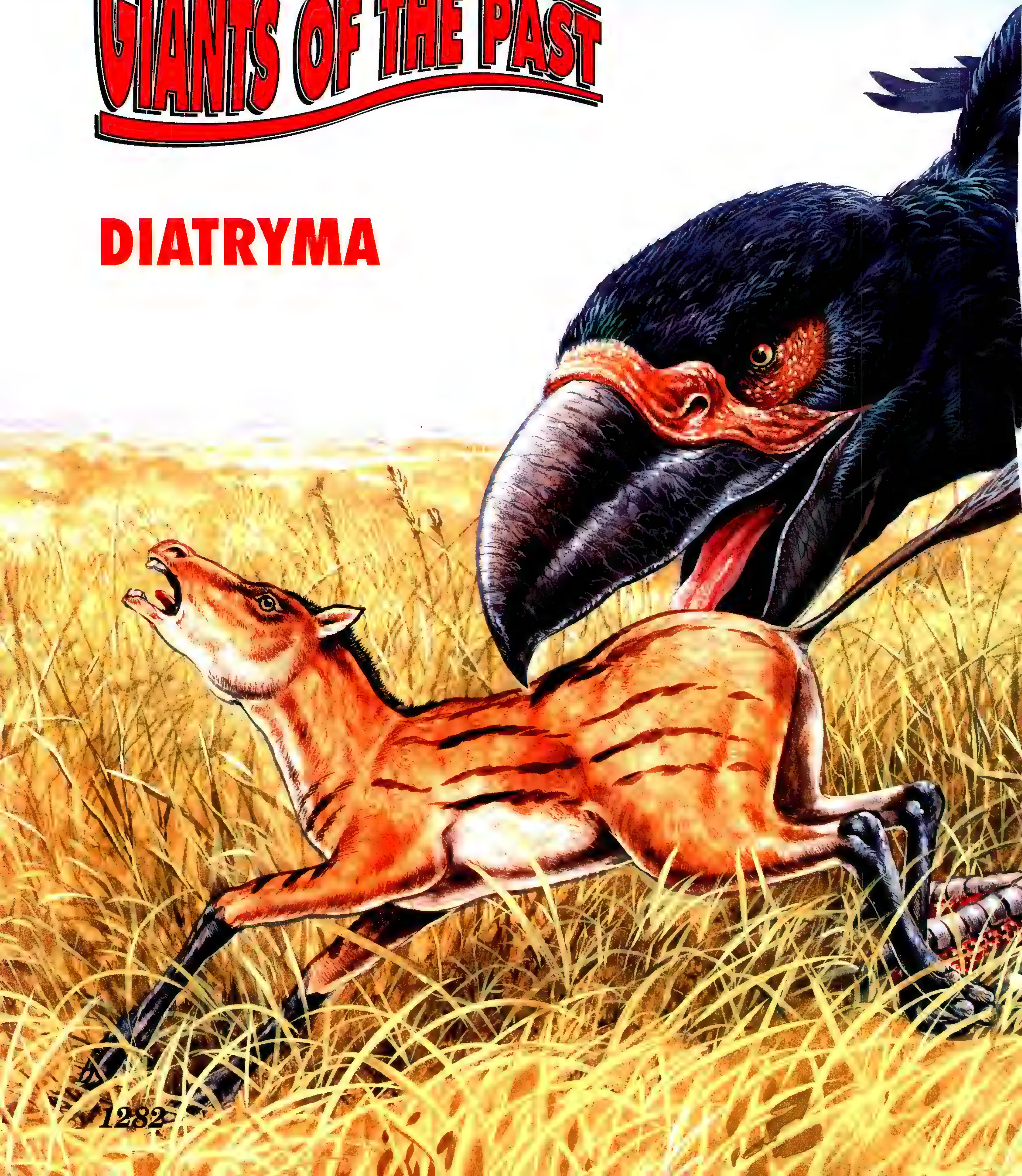
Today's horseshoe crab may be related to the trilobites. It looks a bit like a trilobite and its young look like young trilobites.

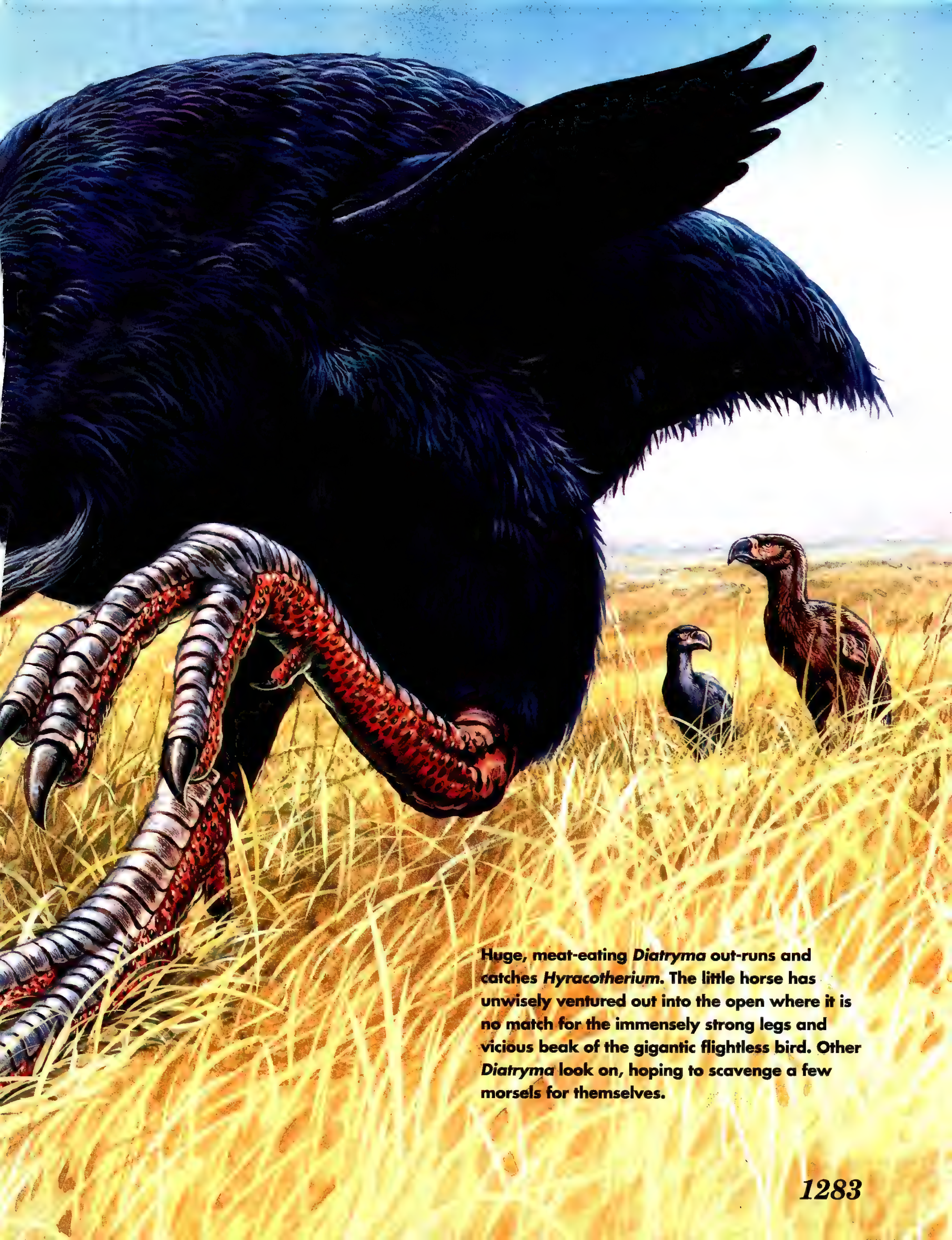


Burrowing trilobites like *Trimerus* may have spent their time digging into loose sand in search of food. Fossilized trilobite trails – the marks left as trilobites travelled across the sea bed – are sometimes found.

GIANTS OF THE PAST

DIATRYMA





Huge, meat-eating *Diatryma* out-runs and catches *Hyracotherium*. The little horse has unwisely ventured out into the open where it is no match for the immensely strong legs and vicious beak of the gigantic flightless bird. Other *Diatryma* look on, hoping to scavenge a few morsels for themselves.

Agile *Coelophysis* scatter a herd of *Heterodontosaurus*. *Coelophysis* is built for speed and so *Heterodontosaurus* will have to run fast to escape. One unlucky *Heterodontosaurus* has fallen and now stands little chance of surviving the needle-like teeth of *Coelophysis*.

3-D Gallery 63

HETERODONTOSAURUS

AMAZING

Antlers are the fastest growing structure in the animal world.

In one hundred days, an antler could grow to about the length of your arm! Growing antlers at such a tremendous rate takes lots of energy. Some scientists think a male may use as much energy when its antlers are growing as a female does when bringing up young deer.

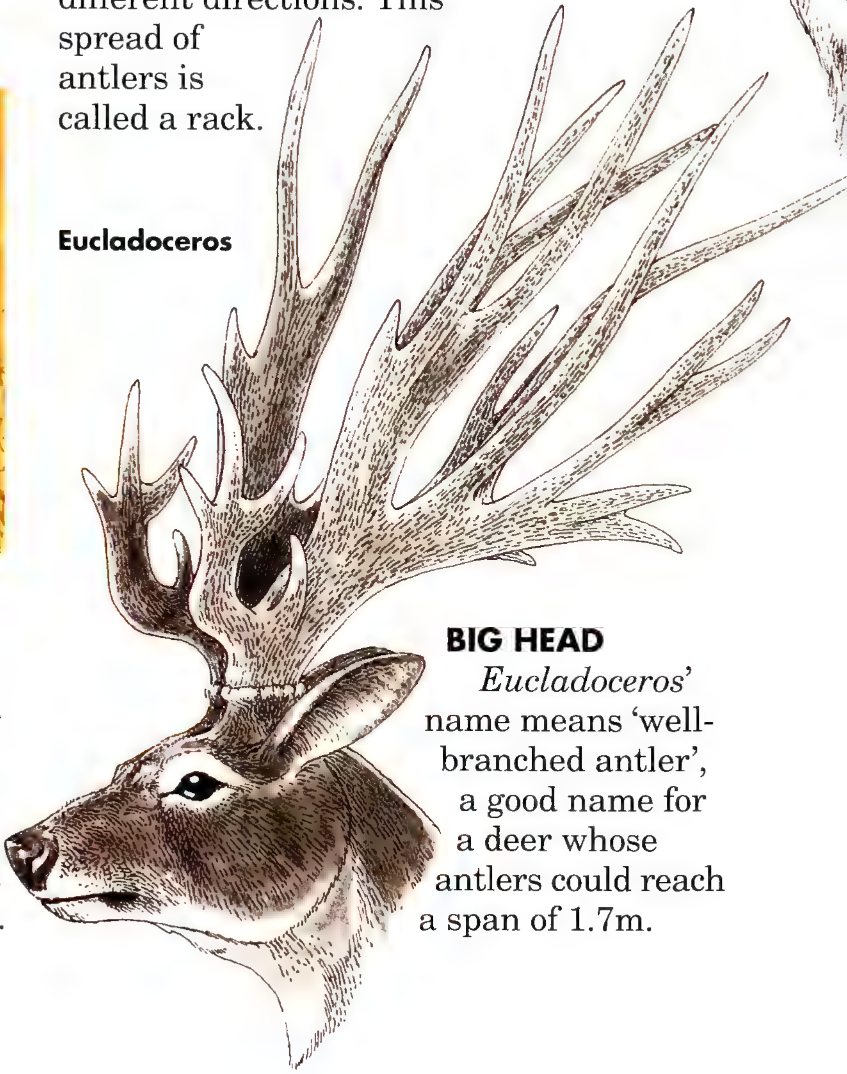
This magnificent red deer is called a 'royal stag' because it has antlers with 12 branches.

RECORD-BREAKER

Imagine a pair of antlers wider than a car is long. The owner of this extraordinary headgear, the prehistoric deer *Megaloceros* (meg-al-oh-ser-os), had the largest antlers of any known deer. This herbivore lived in Europe and Asia about 20,000 years ago. The largest pair of *Megaloceros* antlers yet found measure an amazing 4.3m, end to end.

BRANCHING OUT

Eucladoceros (yoo-klad-oh-ser-os), now extinct, also had magnificent antlers with many branches which sprouted in different directions. This spread of antlers is called a rack.

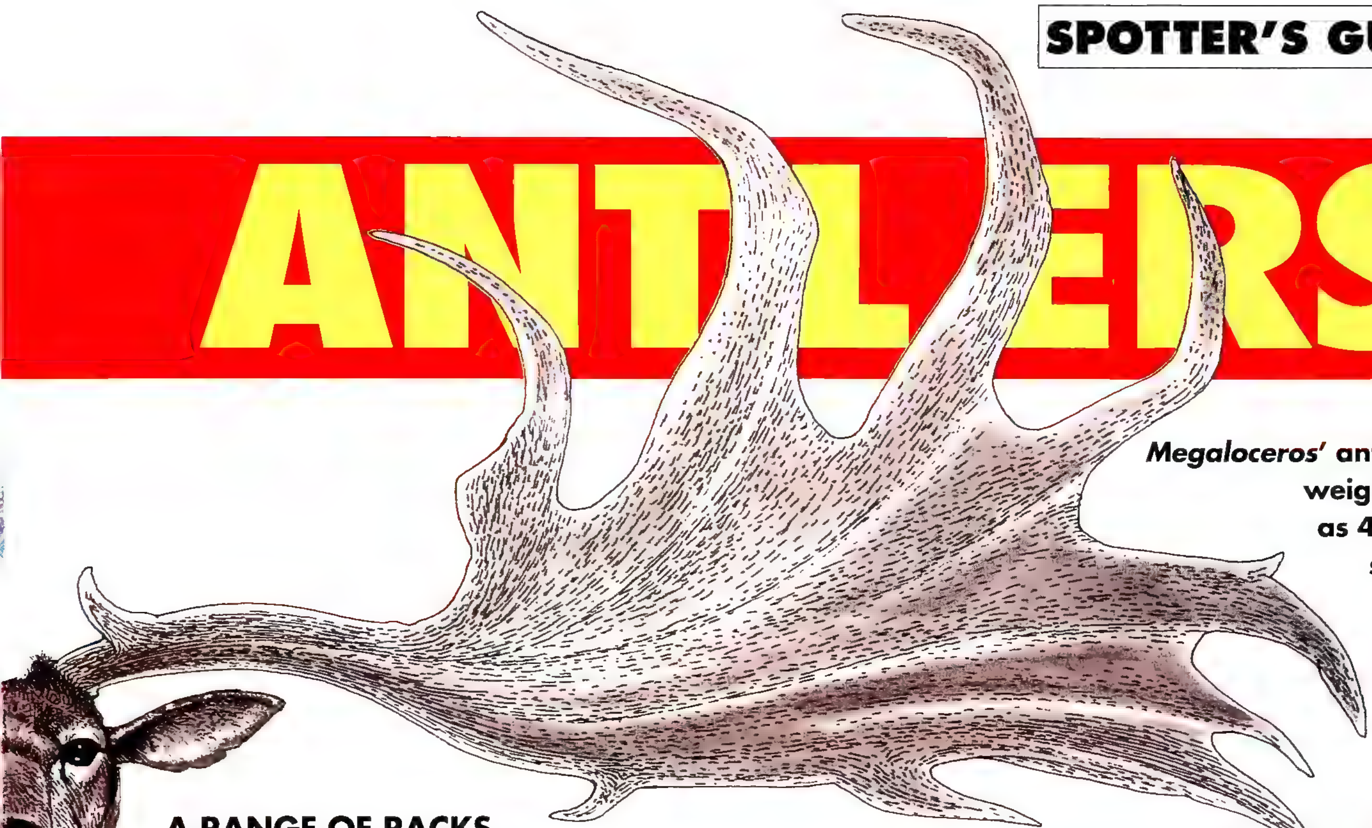


Eucladoceros

BIG HEAD

Eucladoceros' name means 'well-branched antler', a good name for a deer whose antlers could reach a span of 1.7m.

ANTLERS



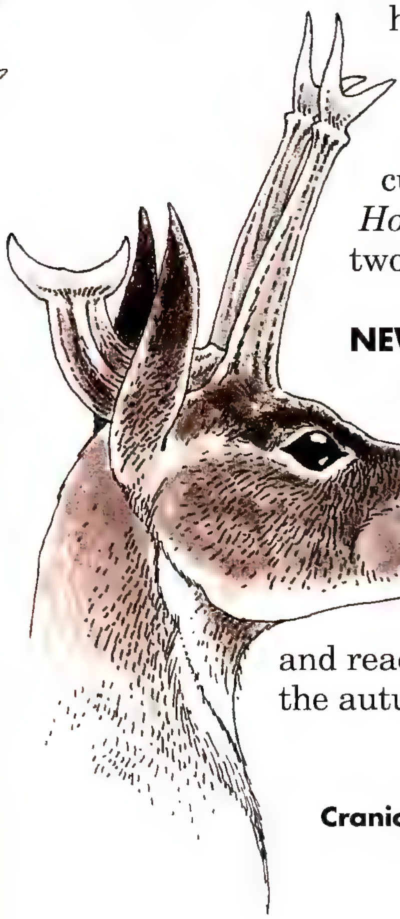
***Megaloceros'* antlers could weigh as much as 45kg – one seventh of its total weight.**

A RANGE OF RACKS

Cranioceros (cran-ee-oh-ser-os) lived in North America from the Miocene to the Pliocene. It had antlers that looked more like pronged horns. Two rose straight up and a third curved back between its ears. *Hoplitomeryx* (hop-light-o-mer-rix) had five horn-shaped antlers. Three of these pointed backwards and two smaller ones curved forwards. *Hoplitomeryx* also had two distinctive fangs.

NEW FOR OLD

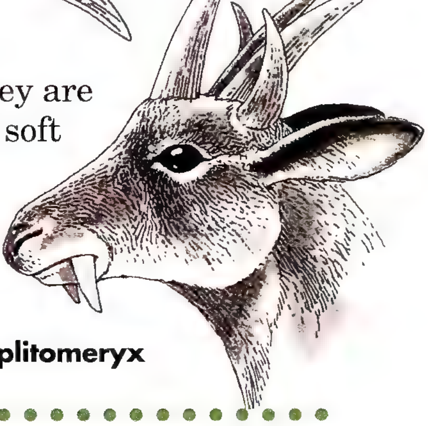
Megaloceros, like the deer of today, grew new antlers each year. These begin to grow in the summer and reach their full size in the autumn.



Cranioceros

VELVET SOFT

As the antlers grow they are protected by a layer of soft skin called velvet. In spring, the old antlers are shed and the base of the new growth revealed.



Hoplitomeryx

IT'S A FACT

Who has antlers?

Deer have antlers. Cattle and antelope have horns. It is usually only the male deer that carry these large antlers although some female caribou and reindeer also have them. Unlike horns, antlers are made of solid bone and are shed each year. Carnivores do not need antlers as they have teeth and claws for protection.

Dinosaur weather

What was the weather like hundreds of millions of years ago? And how did the dinosaurs cope?

Dinosaurs had to adapt themselves to days of blazing sunshine and nights of chilly darkness. They were also plagued by huge volcanic eruptions, violent storms and flash floods.

ALL CHANGE

Why did the climate change so much during the Dinosaur Age? One reason was that when the first dinosaurs appeared, all the continents were joined together. That meant there were vast inland regions cut off from rain-bearing ocean winds. So the climate was drier. But as the continents continued to move, the climate gradually changed.

OUTLOOK UNSETTLED

Shallow seas invaded the land in the Jurassic Period and seaborne winds brought rain to areas that had been deserts. By Cretaceous times, the continents looked more like they do today. The climate was cooler and the different seasons began to emerge.

HOT AND DRY

How did dinosaurs survive in the deserts of Triassic times? The early plant-eating dinosaur *Lesothosaurus* may possibly have aestivated, or slept, through long periods of drought just as some desert animals do today.

This dew-drinking thorny devil lizard (above) lives in the deserts of Australia.

Lesothosaurus (left) may have slept during long dry spells and became active again when the rains started.

A *Diplodocus* herd enjoys the warm rains of the Jurassic Period.

WARM AND WET

More rain fell in the Jurassic Period. A tropical rainstorm was probably just as threatening to animal life as it is today. Modern birds and insects cannot fly through the heavy drops. But reptiles, such as crocodiles, alligators and turtles are much better adapted. Dinosaurs probably behaved in a similar way to today's reptiles. Fossil footprints reveal that the giant sauropods of the time were water-loving creatures which could swim as well as walk.

COOL AND OPEN

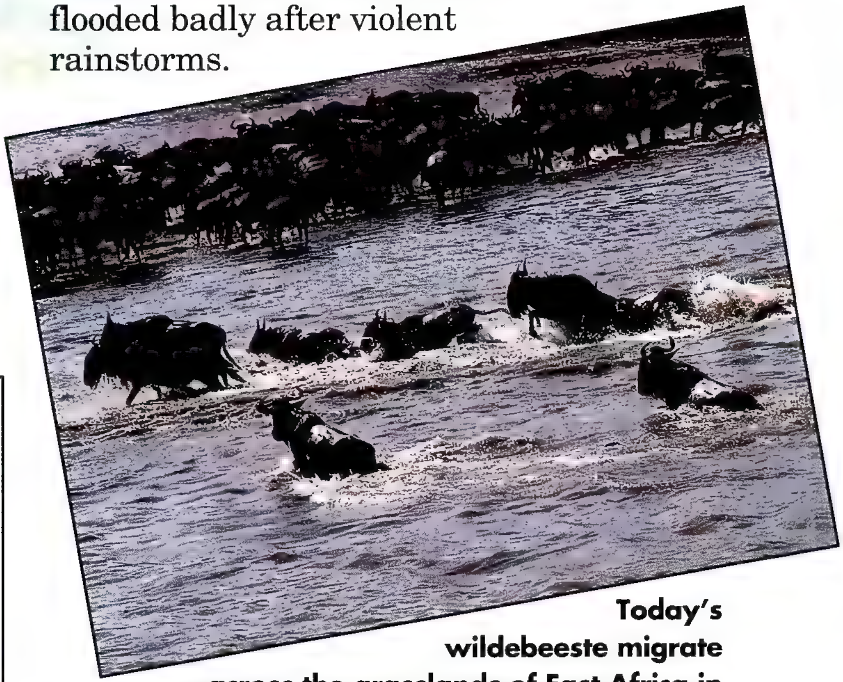
Earth was cooler and drier in Cretaceous times. The forests thinned and open plains of ferns and horsetails appeared. Long-necked sauropods were replaced by plant-eating dinosaurs which browsed closer to the ground. Low-lying plains could have flooded badly after violent rainstorms.

DEW DRINKER

Some desert dinosaurs might have had a special spiny covering like today's thorny devil lizard. This lizard's spines become covered in dew at night, which condenses and runs down grooves towards its mouth.

What is? WEATHER

The air in which we live and breathe is forever on the move. As the Sun warms the Earth's surface, hot air rises and cold air sinks to take its place. Air masses also move around the world. They can be cold, hot, wet or dry. This constant swirling and stirring of air gives us everything we call weather.



Today's wildebeeste migrate across the grasslands of East Africa in search of food. Some dinosaurs may have migrated and, like the wildebeest, lost members of the herd in flooded rivers.

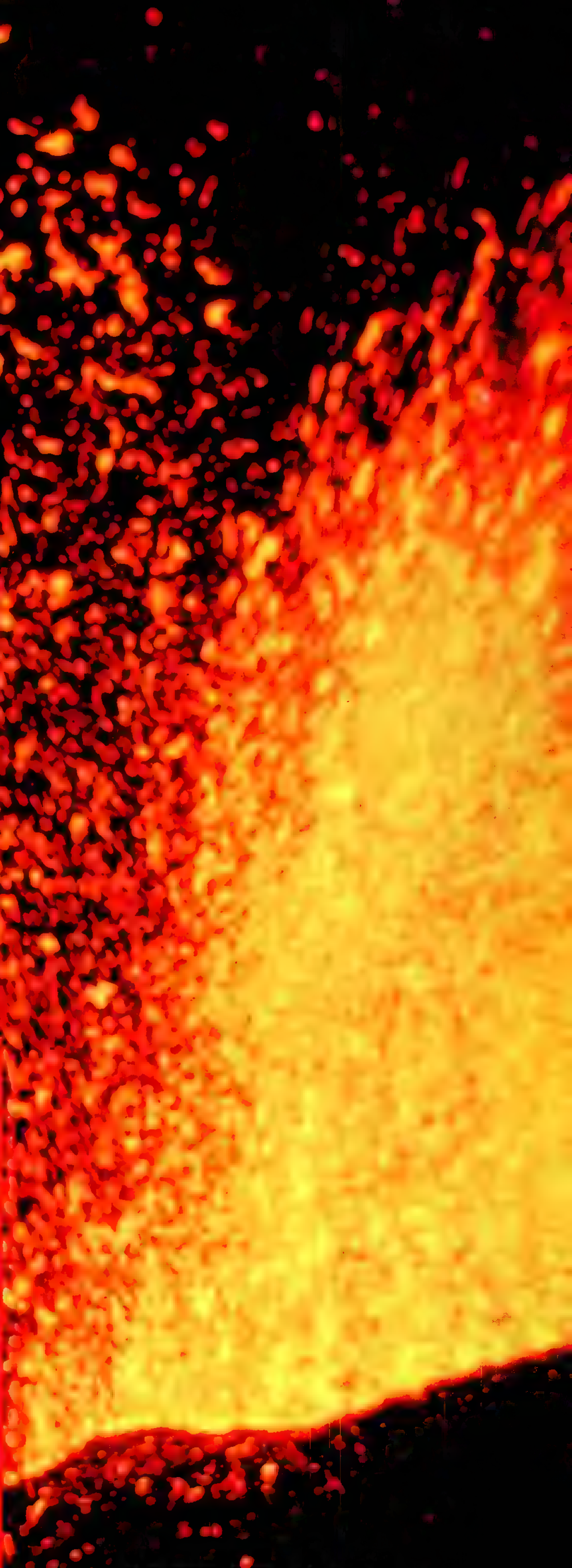
FOREST FIRE

Large groups of dinosaurs such as *Lambeosaurus* may have perished together as a result of forest fires. A bolt of lightning or a shower of volcanic sparks could have triggered a blaze. Whatever the cause, the flames would have created instant panic. Just like creatures caught in a forest fire today, many dinosaurs might have been fatally injured trying to escape.

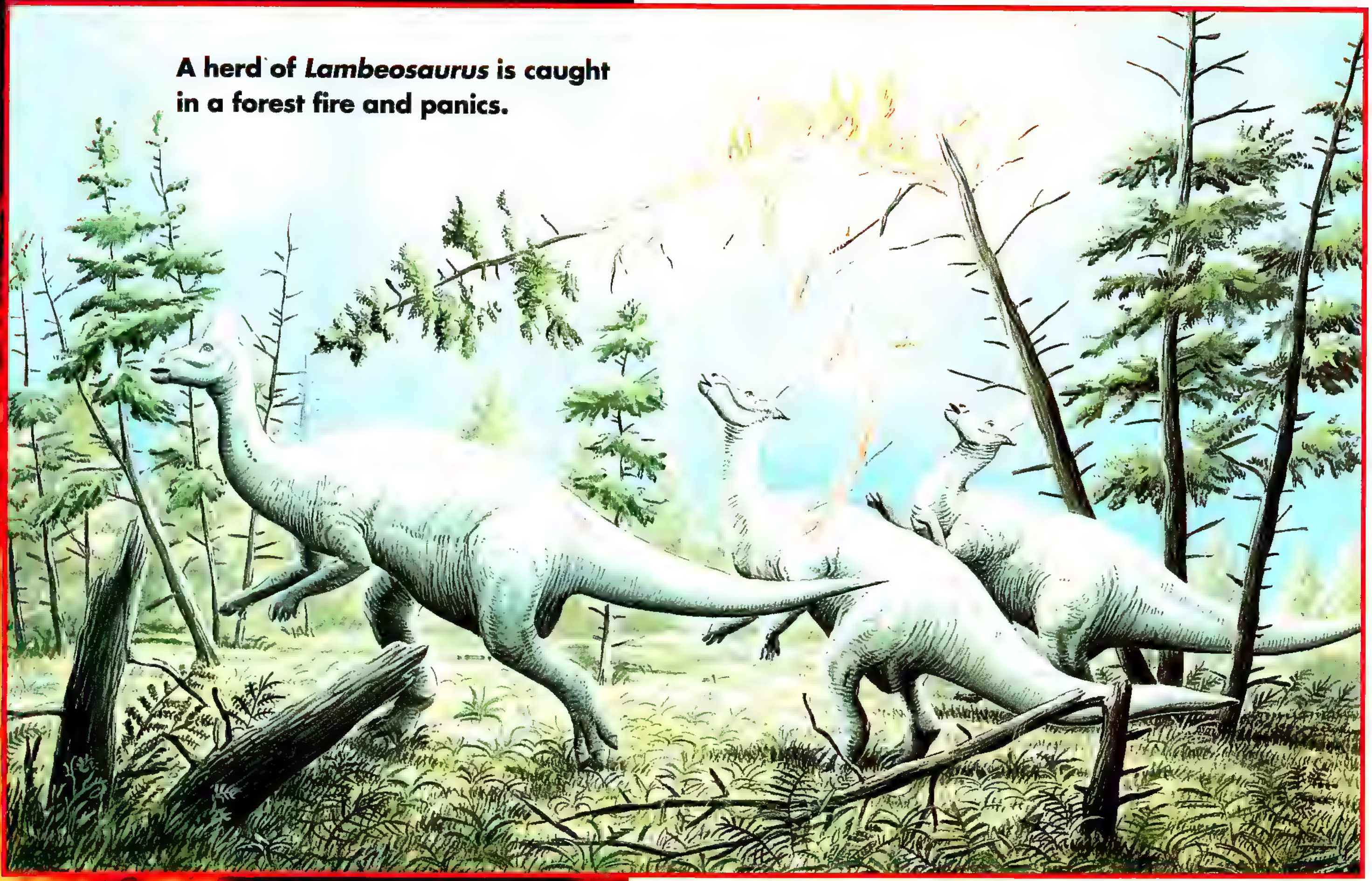
RIVERS OF ROCK

The end of the Dinosaur Age was a time of great volcanic activity. Liquid rock, or lava, gushing down a mountain would have destroyed everything in its path. And the clouds of poisonous gases, which billowed up into the air, also caused death and destruction. A bone bed containing a huge herd of *Hypacrosaurus* has been found in a volcanic region in North America. Perhaps they perished in a giant eruption.

An enormous herd of *Hypacrosaurus* may have perished together in a volcanic eruption in North America. A bone bed has been found with thousands of *Hypacrosaurus* bones.



An erupting volcano destroys animal life both because of the red hot lava gushing from it, and because of the poisonous gases and smoke it spews out.



A herd of *Lambeosaurus* is caught in a forest fire and panics.

THE BIG FREEZE

A drastic change in the world's weather could have caused the death of the dinosaurs. Fossil evidence shows that the Earth might have been hit by a massive meteorite. Or there could have been an immense volcanic eruption. Either catastrophe could have blanketed the world in a deadly dust cloud. Dinosaurs would have been too big to burrow to escape frost, and they probably had no hair or feathers to keep them warm. So they could have been wiped out by the cold.

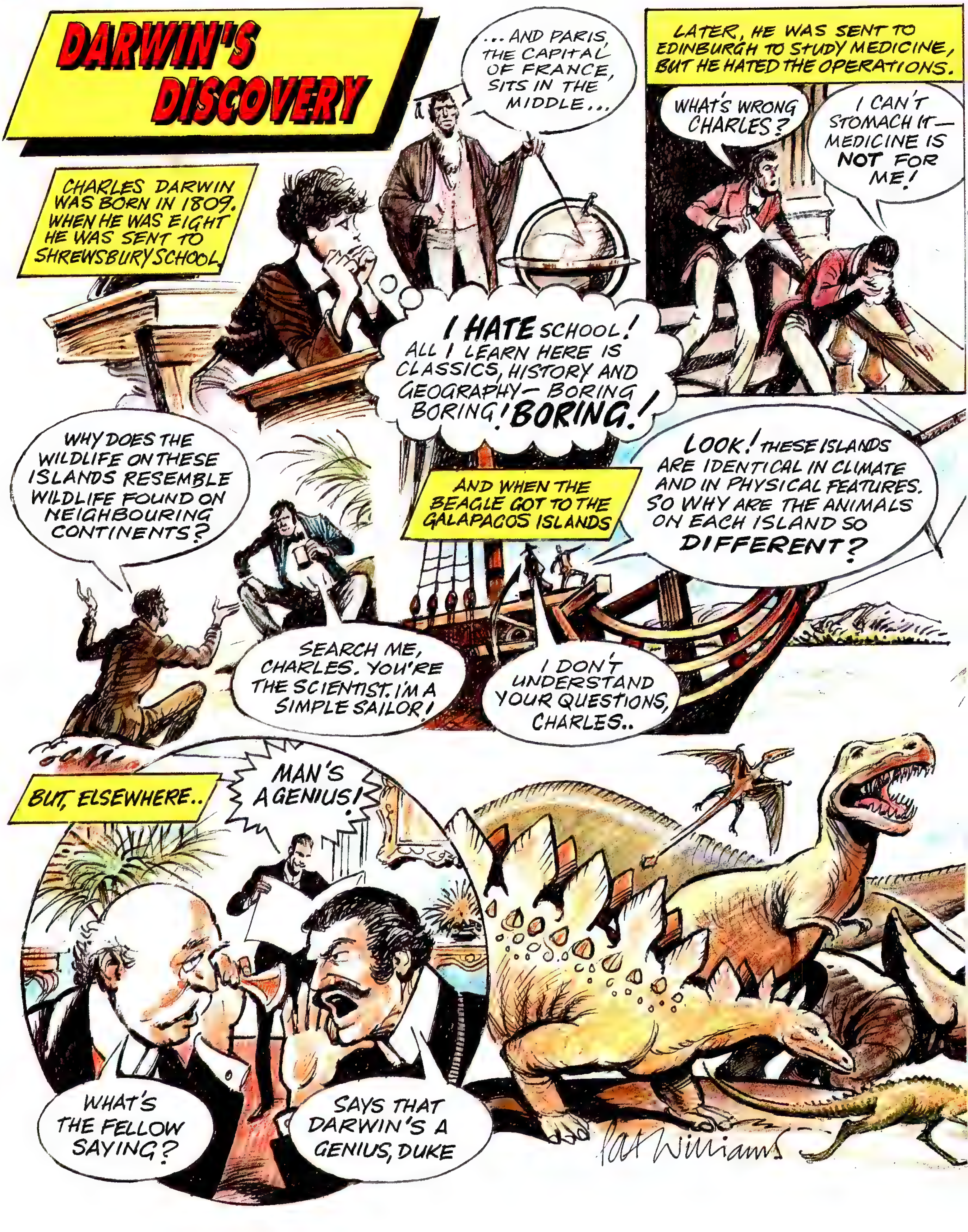
IT'S A FACT

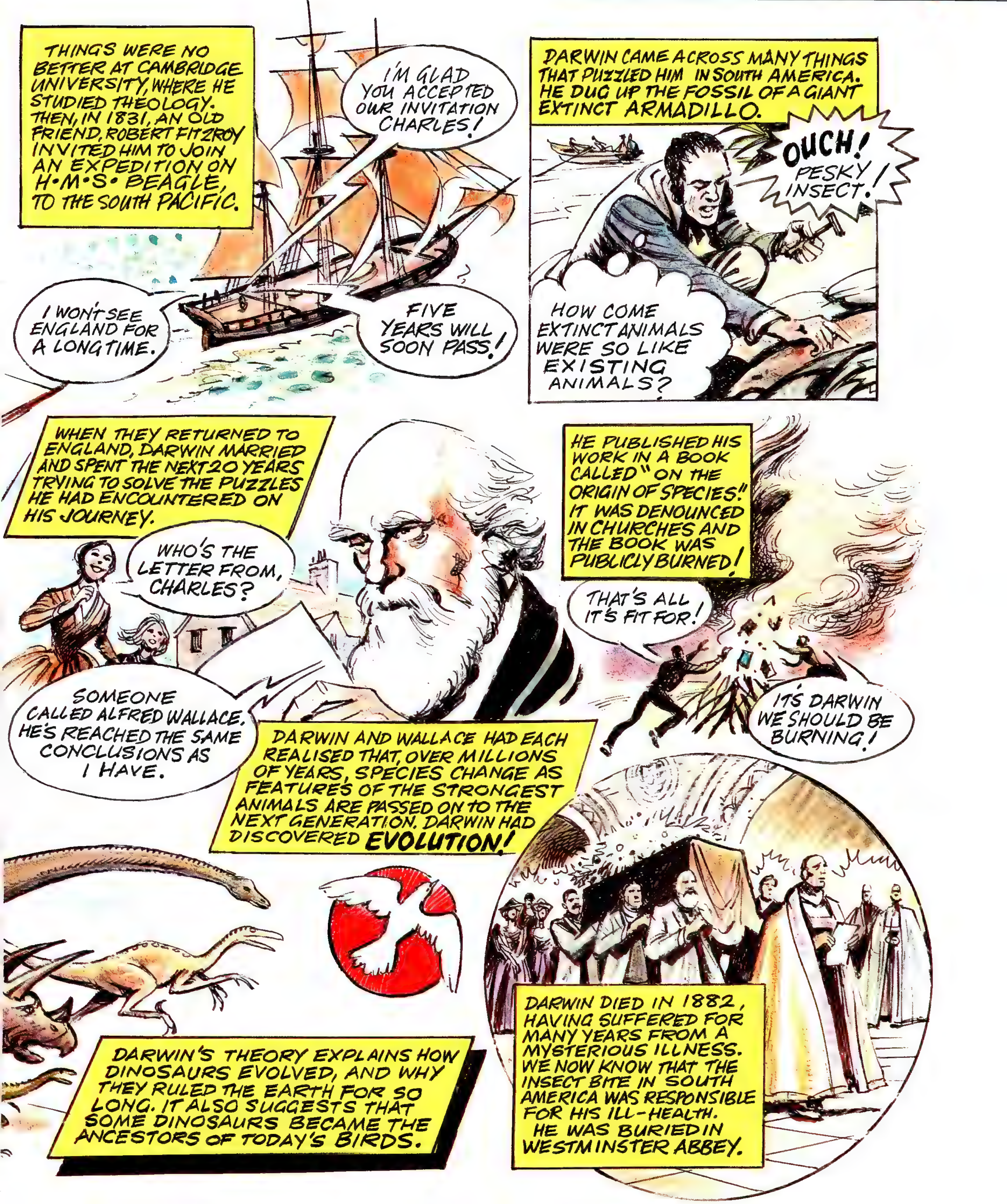
THUNDERSTRUCK

Big thunderclouds tower 16km high. They churn up enough energy to light a small town for a year. Huge electric sparks fly between thunderclouds. They are lightning flashes. They heat the air so much it expands at great speed. That produces the sonic bang we call thunder.

Today's furry dormouse can curl up and hibernate to sleep away cold spells. Some dinosaurs may have been able to hibernate too.

DARWIN'S DISCOVERY

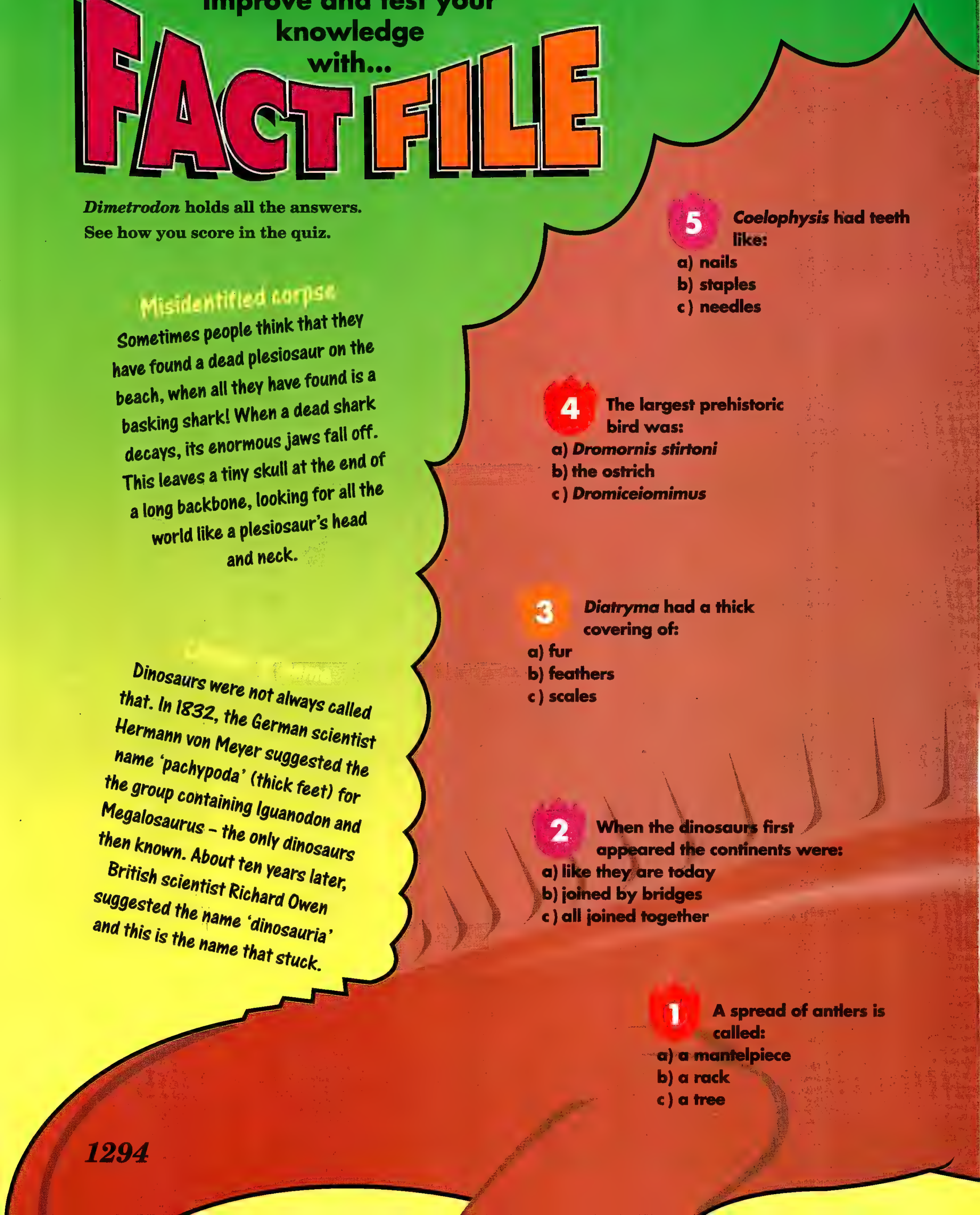

DARWIN'S DISCOVERY
CHARLES DARWIN WAS BORN IN 1809. WHEN HE WAS EIGHT HE WAS SENT TO SHREWSBURY SCHOOL
...AND PARIS, THE CAPITAL OF FRANCE, SITS IN THE MIDDLE...
I HATE SCHOOL! ALL I LEARN HERE IS CLASSICS, HISTORY AND GEOGRAPHY – BORING BORING! BORING!
LATER, HE WAS SENT TO EDINBURGH TO STUDY MEDICINE, BUT HE HATED THE OPERATIONS.
WHAT'S WRONG CHARLES?
I CAN'T STOMACH IT – MEDICINE IS NOT FOR ME!
AND WHEN THE BEAGLE GOT TO THE GALAPAGOS ISLANDS
WHY DOES THE WILDLIFE ON THESE ISLANDS RESEMBLE WILDLIFE FOUND ON NEIGHBOURING CONTINENTS?
SEARCH ME, CHARLES. YOU'RE THE SCIENTIST. I'M A SIMPLE SAILOR!
LOOK! THESE ISLANDS ARE IDENTICAL IN CLIMATE AND IN PHYSICAL FEATURES. SO WHY ARE THE ANIMALS ON EACH ISLAND SO DIFFERENT?
I DON'T UNDERSTAND YOUR QUESTIONS, CHARLES..
BUT, ELSEWHERE..
MAN'S A GENIUS!
WHAT'S THE FELLOW SAYING?
SAYS THAT DARWIN'S A GENIUS, DUKE
Pat Williams


THINGS WERE NO BETTER AT CAMBRIDGE UNIVERSITY, WHERE HE STUDIED THEOLOGY. THEN, IN 1831, AN OLD FRIEND, ROBERT FITZROY INVITED HIM TO JOIN AN EXPEDITION ON H·M·S· BEAGLE, TO THE SOUTH PACIFIC.
I'M GLAD YOU ACCEPTED OUR INVITATION CHARLES!
I WON'T SEE ENGLAND FOR A LONG TIME.
FIVE YEARS WILL SOON PASS!
DARWIN CAME ACROSS MANY THINGS THAT PUZZLED HIM IN SOUTH AMERICA. HE DUG UP THE FOSSIL OF A GIANT EXTINCT ARMADILLO.
OUCH! PESKY INSECT!
HOW COME EXTINCT ANIMALS WERE SO LIKE EXISTING ANIMALS?
WHEN THEY RETURNED TO ENGLAND, DARWIN MARRIED AND SPENT THE NEXT 20 YEARS TRYING TO SOLVE THE PUZZLES HE HAD ENCOUNTERED ON HIS JOURNEY.
WHO'S THE LETTER FROM, CHARLES?
SOMEONE CALLED ALFRED WALLACE. HE'S REACHED THE SAME CONCLUSIONS AS I HAVE.
HE PUBLISHED HIS WORK IN A BOOK CALLED "ON THE ORIGIN OF SPECIES." IT WAS DENOUNCED IN CHURCHES AND THE BOOK WAS PUBLICLY BURNED!
THAT'S ALL IT'S FIT FOR!
IT'S DARWIN WE SHOULD BE BURNING!
DARWIN AND WALLACE HAD EACH REALISED THAT, OVER MILLIONS OF YEARS, SPECIES CHANGE AS FEATURES OF THE STRONGEST ANIMALS ARE PASSED ON TO THE NEXT GENERATION. DARWIN HAD DISCOVERED EVOLUTION!
DARWIN'S THEORY EXPLAINS HOW DINOSAURS EVOLVED, AND WHY THEY RULED THE EARTH FOR SO LONG. IT ALSO SUGGESTS THAT SOME DINOSAURS BECAME THE ANCESTORS OF TODAY'S BIRDS.
DARWIN DIED IN 1882, HAVING SUFFERED FOR MANY YEARS FROM A MYSTERIOUS ILLNESS. WE NOW KNOW THAT THE INSECT BITE IN SOUTH AMERICA WAS RESPONSIBLE FOR HIS ILL-HEALTH. HE WAS BURIED IN WESTMINSTER ABBEY.

Improve and test your knowledge with...

FACT FILE

Dimetrodon holds all the answers. See how you score in the quiz.



Misidentified corpse

Sometimes people think that they have found a dead plesiosaur on the beach, when all they have found is a basking shark! When a dead shark decays, its enormous jaws fall off. This leaves a tiny skull at the end of a long backbone, looking for all the world like a plesiosaur's head and neck.

[illegible]

Dinosaurs were not always called that. In 1832, the German scientist Hermann von Meyer suggested the name 'pachypoda' (thick feet) for the group containing Iguanodon and Megalosaurus – the only dinosaurs then known. About ten years later, British scientist Richard Owen suggested the name 'dinosauria' and this is the name that stuck.

5 ***Coelophysis* had teeth like:**
a) nails
b) staples
c) needles

4 **The largest prehistoric bird was:**
a) *Dromornis stirtoni*
b) the ostrich
c) *Dromiceiomimus*

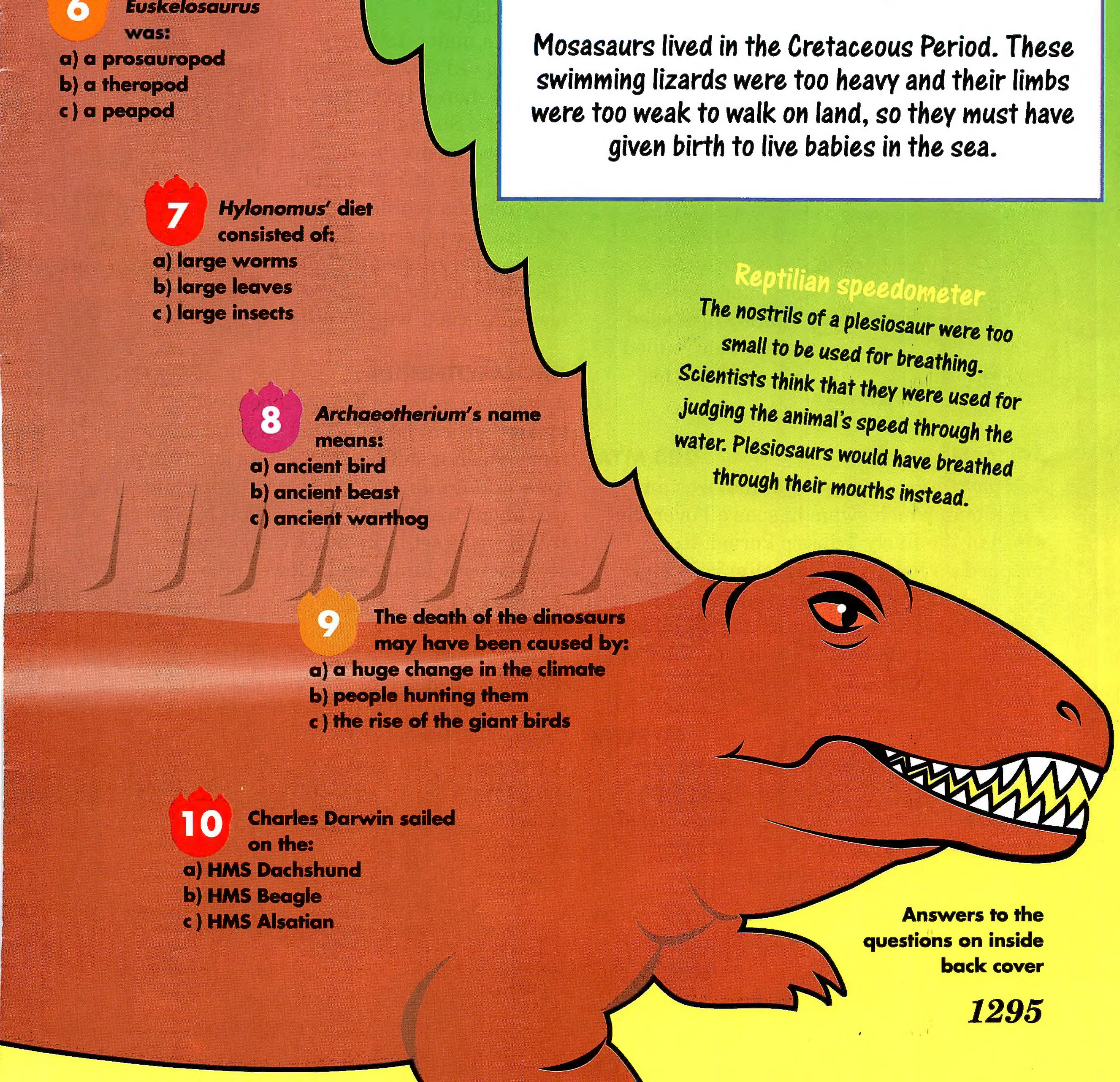
3 ***Diatryma* had a thick covering of:**
a) fur
b) feathers
c) scales

2 **When the dinosaurs first appeared the continents were:**
a) like they are today
b) joined by bridges
c) all joined together

1 **A spread of antlers is called:**
a) a mantelpiece
b) a rack
c) a tree

Water babies!

Mosasaurs lived in the Cretaceous Period. These swimming lizards were too heavy and their limbs were too weak to walk on land, so they must have given birth to live babies in the sea.



6 ***Euskelosaurus* was:**

a) a prosauropod
b) a theropod
c) a peapod

7 ***Hylonomus'* diet consisted of:**

a) large worms
b) large leaves
c) large insects

8 ***Archaeotherium's* name means:**

a) ancient bird
b) ancient beast
c) ancient warthog

9 **The death of the dinosaurs may have been caused by:**

a) a huge change in the climate
b) people hunting them
c) the rise of the giant birds

10 **Charles Darwin sailed on the:**

a) HMS Dachshund
b) HMS Beagle
c) HMS Alsatian

Reptilian speedometer

The nostrils of a plesiosaur were too small to be used for breathing. Scientists think that they were used for judging the animal's speed through the water. Plesiosaurs would have breathed through their mouths instead.

Answers to the questions on inside back cover

A to Z OF PREHISTORIC ANIMALS AN – AR

ANDREWSARCHUS 40 MYA

Andrewsarchus (an-dru-sar-kus) was a large bear-like creature, as long as a car. It lived in eastern Asia in the Late Eocene Epoch. Experts think that packs of *Andrewsarchus* worked together to hunt large plant-eaters. It probably ate both meat and plants and used its blunt cheek teeth to crush bones and tough stems. At the end of its sturdy legs, it had flattened nails instead of claws. *Andrewsarchus* belonged to a family of 'hoofed mammals', called condylarths.

APHANERAMMA 220 MYA

Aphaneramma (af-fan-a-ramma) was an amphibian which swam in seas all over the world in the Early Triassic Period. It snapped up fish in its long, slim jaws and ripped their flesh with sharp teeth. *Aphaneramma* was about as long as an adult human's arm. Its head took up one third of its whole length.

APODOPS 60 MYA

Only one vertebra (a bony segment in the spine) of this worm-like burrowing creature has been found. *Apodops* (ap-oh-dops) lived on land and in water in the Palaeocene Epoch in Brazil, South America.

MYA = MILLION YEARS AGO

ARCHAEOPTERYX 150 MYA

Archaeopteryx (ar-kee-op-ter-ix) was a major discovery as it showed that birds and reptiles shared the same ancestors. Six well-preserved fossils reveal that it had the teeth, claws and bony tail of a reptile and the wishbone, wings and feathers of a bird. *Archaeopteryx* lived in Bavaria, south-west Germany, in the Late Jurassic. Its name means 'ancient wing'.

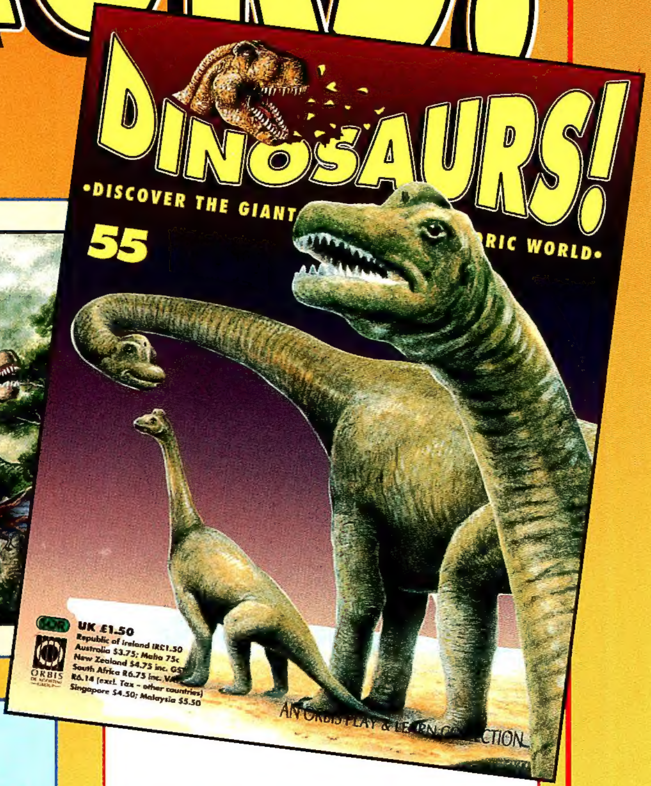
ARCHAEOTHERIUM 30 MYA

Archaeotherium (ar-kee-oh-thee-ree-um) means 'ancient beast'. It fed on plants and roots which it sniffed out with its long snout. *Archaeotherium* looked like a warthog and was about waist height to an adult human. It had tusks set in its massive head and strange bony lumps on its lower jaw.

ARCHELON 70 MYA

Twice the size of the modern sea-turtle, *Archelon* (ar-kee-lon) swam in the waters above Wyoming, North America, in the Late Cretaceous Period. This huge reptile caught fish in its hooked beak. Its name means 'ancient turtle'.

COMING IN PART 55 OF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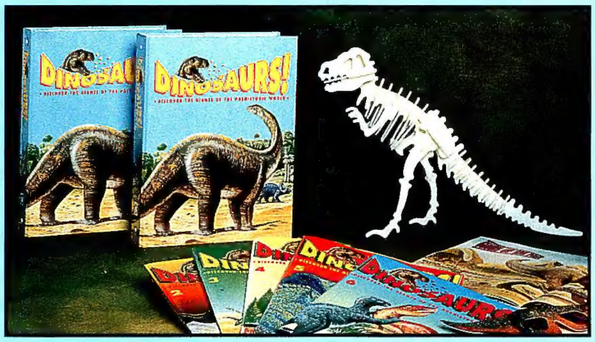

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PLUS

Three more amazing prehistoric creatures in IDENTIKIT
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ANSWERS TO FACT FILE QUESTIONS: 1.b 2.c 3.b 4.a 5.c 6.a 7.c 8.b 9.a 10.b

Dr. David Norman of Cambridge University answers your dinosaur questions

ASK THE EXPERT

Did dinosaurs have hair?

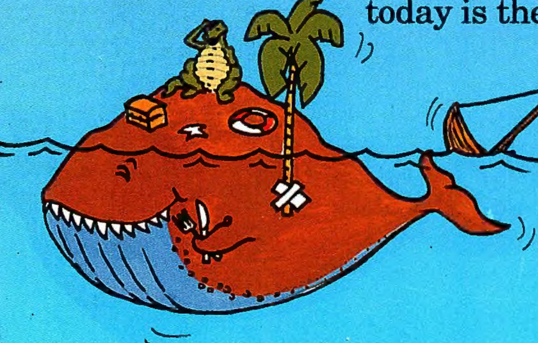
Scientists do not think that dinosaurs were hairy. Some fossil dinosaur skeletons – including several hadrosaurs, and some theropods and sauropods, have now been found which include impressions of the skin. All these show that the skin was scaly like that of modern reptiles, so it seems most probable that dinosaurs were scaly rather than hairy.

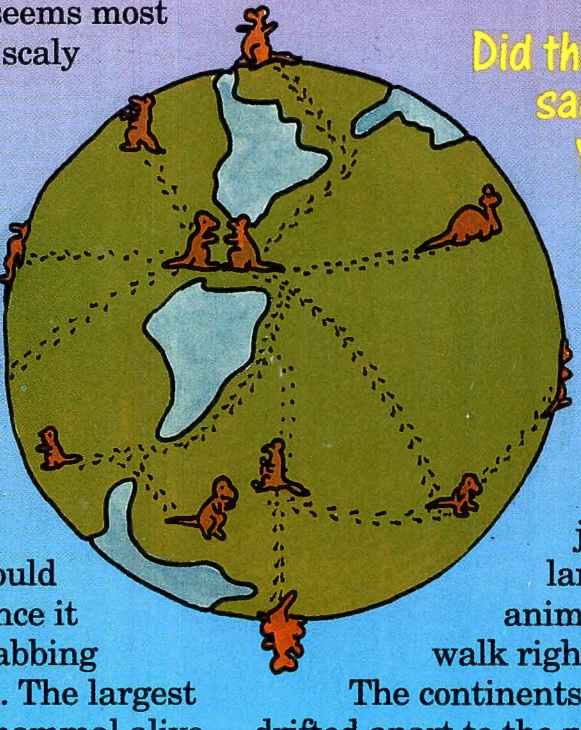
Which prehistoric animal had the longest tusks?

The Ice Age mammoths seem to have had the longest tusks of all. They may have used them as shovels to clear snow and get to the grass beneath. Tusks have been found reaching lengths of 3.5m measured along their curved edges.

What is the largest known carnivorous mammal ever?

One of the largest carnivorous fossil mammals that I know of was *Basilosaurus*. This was a huge early whale which grew up to 20m long. It had large saw-shaped teeth, which it would have used to cut up its prey once it had killed it with the large stabbing teeth in the front of its mouth. The largest carnivorous mammal alive today is the huge sperm whale.





Did the Earth look the same millions of years ago as it does today?

The Earth looked very different millions of years ago. About 250 million years ago, all the continents were joined together in one large land mass. So animals could literally walk right across the world! The continents have gradually drifted apart to the position you see them on maps today. But they are still moving so hold on tight!

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